# HCD-MD333

# SERVICE MANUAL

*US Model*
*Canadian Model*
*AEP Model*
*UK Model*
*E Model*
*Australian Model*
*Tourist Model*

Self Diagnosis Supported model

HCD-MD333 is the amplifier, CD, MD and tuner section in DHC-MD333.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

| | | |
|---|---|---|
| CD SECTION | Model Name Using Similar Mechanism | NEW |
| | Mechanism Type | CDM13C-5BD19 |
| | Base Unit Type | BU-5BD19 |
| | Optical Pick-up Type | KSS-213B/K-N |
| MD SECTION | Model Name Using Similar Mechanism | NEW |
| | Mechanism Type | MDM-3J |
| | Optical Pick-up Type | KSM-260A-JIN |

## SPECIFICATIONS

### Amplifier section

**AUDIO POWER SPECIFICATIONS:**
**(U.S.A. and Canadian models only)**

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
with 6 ohm loads both channels driven, from 70 - 20,000 Hz; rates 20 watts per channel minimum RMS power, with no more than 0.9% total harmonic distortion from 250 milliwatts to rated output.

Continuous RMS power output
25 + 25 watts
(6 ohms at 1 kHz, 10% THD, 120V)(Reference)

European model:
DIN power output (Rated)
25 + 25 watts
(6 ohms at 1 kHz, DIN, 230V)
Continuous RMS power output (Reference)
30 + 30 watts
(6 ohms at 1 kHz, 10% THD, 230V)
Music power output (Reference)
50 + 50 watts

Other models:
DIN power output (Rated)
20 + 20 watts
(6 ohms at 1 kHz, DIN, 240V)
18 + 18 watts
(6 ohms at 1 kHz, DIN, 220V)
Continuous RMS power output (Reference)
25 + 25 watts
(6 ohms at 1 kHz, 10% THD, 240V)
23 + 23 watts
(6 ohms at 1 kHz, 10% THD, 220V)
Peak music power output 400 watts

Inputs TAPE IN (phono jacks):
voltage 250 mV/125 mV,
impedance 47 kilohms
Outputs TAPE OUT (phono jacks):
voltage 250 mV
impedance 1 kilohms
PHONES (Stereo minijack):
accepts headphones of 8 ohms or more.
SPEAKER: accepts impedance of 6 to 16 ohms.

— Continued on next page —

## COMPACT DISC DECK RECEIVER

MICROFILM

SONY®

## CD player section

| | |
|---|---|
| System | Compact disc and digital audio system |
| Laser | Semiconductor laser (λ=780 nm)<br>Emission duration: continuous |
| Laser output | Max. 44.6 μW*<br>*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture. |
| Frequency response | 2 Hz – 20 kHz |

## MD deck section

| | |
|---|---|
| System | MiniDisc digital audio system |
| Laser | Semiconductor laser (λ=780 nm)<br>Emission duration: continuous |
| Laser output | Max. 44.6 μW*<br>*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with a 7 mm aperture. |
| Recording time | 74 minutes max. (using MDW-74) |
| Sampling frequency | 44.1 kHz |
| Frequency response | 5 Hz to 20 kHz |

## Tuner section

FM stereo, FM/AM superheterodyne tuner

## FM tuner section

| | |
|---|---|
| Tuning range | 87.5 – 108.0 MHz (50 kHz step) |
| Aerial | FM lead aerial |
| Aerial terminals | 75 ohms unbalanced |
| Intermediate frequency | 10.7 MHz |

## AM tuner section

Tuning range
North American model:

| | |
|---|---|
| AM: | 530 – 1,710 kHz (with the interval set at 10 kHz)<br>531 – 1,710 kHz (with the interval set at 9 kHz) |

European model:

| | |
|---|---|
| MW: | 531 – 1,602 kHz (with the interval set at 9 kHz) |
| LW: | 153 – 279 kHz (with the interval set at 3 kHz) |

Other models:

| | |
|---|---|
| MW: | 531 – 1,602 kHz (with the interval set at 9 kHz)<br>530 – 1,710 kHz (with the interval set at 10 kHz) |
| SW: | 5.95 – 17.90 MHz (with the interval set at 5 kHz) |
| Aerial | AM loop aerial<br>External aerial terminals |
| Intermediate frequency | 450kHz |

## General

| | |
|---|---|
| Power requirements | |
| North American model: | 120 V AC, 60 Hz |
| European model: | 230 V AC, 50/60 Hz |
| Other models: | 110 - 120 V or 220 - 240 V AC, 50/60 Hz |
| Power consumption | |
| North American model: | 70 watts |
| Other models: | 80 watts |
| Dimensions | |
| Amplifier/Tuner/MD/CD section: | Approx. 215 × 150 × 315 mm ($8\ ^1/_4 \times 6 \times 12\ ^1/_2$ in) (w/h/d) incl. projecting parts and controls |
| Mass | |
| Amplifier/Tuner/MD/CD section: | Approx. 5.5 kg (12 lb8oz.) |
| Supplied accessories | Remote RM-MD333 (1)<br>AA (R6) batteries (2)<br>AM loop aerial (1)<br>FM lead aerial (1) |

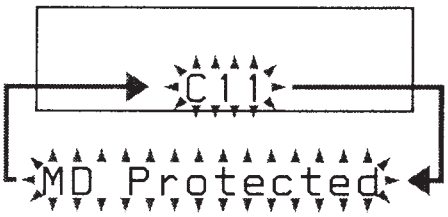
Design and specifications are subject to change without notice.

## SELF-DIAGNOSIS FUNCTION

The self-diagnosis function consists of error codes for users which are displayed automatically when errors occur, and error codes which show the error history in the test mode during servicing. For details on how to view error codes for users, refer to the following box in the instruction manual. For details on how to perform checks during servicing, refer to the following "Procedure for Using the Self-Diagnosis Function (Error History Display Mode)".

# Self-diagnosis Display

This system has the Self-diagnosis display function to let you know if there is a system malfunction. The display shows a code made up of three letters and a message alternately to show you the problem. To solve the problem refer to the following list. If any problem persists, consult your nearest Sony dealer.




**C11/MD Protected**

The MD is protected against erasure.

→Remove the MD and slide the tab to close the slot (page 28).

**C13/REC Error**

Recording is not possible.

→Move the system to a stable place and start recording over from the beginning.

The MD is dirty or is scratched or the MD does not meet the standards.

→Change the MD with another one and start recording over from the beginning.

**C13/Disc Error**

The MD deck cannot read the disc information correctly.

→Eject the MD once, then insert it again.

**C14/Disc Error**

The MD deck cannot read the disc information correctly.

→Change the MD with another one.

→Erase all the recorded contents of the MD using the Erase function on page 39.

### Procedure for Using the Self-Diagnosis Function (Error History Display Mode)

**Note:** Perform the self-diagnosis function in the "error history display mode" in the test mode. The following describes the least required steps. Be careful not to enter other modes by mistake. If other modes are set accidentally, press the [▶II (CD)] button to exit that mode.

1. With the power off, press the [▶II (MD)] button while pressing the [PLAY MODE] button.
2. Rotate the [VOLUME] knob until "ERR DP MODE" is displayed.
3. Pressing the [■ (CD)] button sets the error history mode and displays "total rec".
4. Select the contents to be displayed or executed using the [VOLUME] knob.
5. Pressing the [⏏ (CD)] button displays or executes the contents selected.
6. Pressing the [⏏ (CD)] button another time returns to step 4.
7. Pressing the [▶II (CD)] button displays "ERR DP MODE" and exits the error history mode.
8. To exit the test mode, press the [REPEAT] button. The unit sets into the STANDBY state, and the test mode ends.

## ITEMS OF ERROR HISTORY MODE ITEMS AND CONTENTS

### Selecting the Test Mode

| Display | Details of History |
|---|---|
| total rec | Displays the recording time in the form of "r□□□□□□h".<br>The displayed time is the total number of hours the laser is high power, which is about one-fourth of the actual recording time. The time is displayed in decimal digits between 0h to 65535h. |
| total play | Displays the playback time in the form of "p□□□□□□h".<br>The displayed time is the total actual play time. The paused time is not counted. The time is displayed in decimal digits between 0h to 65535h. |
| retry err | Displays the total number of retries during recording and retry errors during playback in the form of "r□□p□□".<br>"r" indicates the retries during recording while "p" indicates the retry errors during playback. The number of retries is displayed in hexadecimal digits between 00 to FF. |
| total err | Displays the total number of errors in the form of "total □□".<br>The number of errors is displayed in hexadecimal digits between 00 to FF. |
| err history | Displays the 10 latest errors in the form of "0□ E@@".<br>The □ indicates the history number. The smaller the number, the newer is the error. (00 is the latest error.)<br>The @@ indicates the error code. Refer to the following table for details. Rotate the VOLUME knob to switch the error history. |
| er refresh? | Mode which erases all the error histories.<br>The error history serves as a reference for when to replace the optical pick-up. Perform this procedure when the optical pick-up has been replaced in order to erase past error histories and not at other times. Press the ■ (CD) button when "er refresh??" is displayed. The history will be erased and "Complete!" will be displayed momentarily.<br>Be sure to check the following when this mode has been executed.<br>• Check that the data has been erased.<br>• Perform recording and playback, and check that the mechanism operates normally. |

### Table of Error Codes

| Error Code | Details of Error | Error Code | Details of Error |
|---|---|---|---|
| E00 | No error | E05 | FOK has deviated |
| E01 | Disc error. Cannot read PTOC<br>(Disc is ejected out) | E06 | Unfocused (Servo has deviated) |
| | | E07 | Recording retry |
| E02 | Disc error. UTOC error<br>(Disc is not ejected out) | E08 | Recording retry error |
| | | E09 | Play retry error<br>(Access error) |
| E03 | Loading error | | |
| E04 | Cannot read address (Servo has deviated) | E0A | Playback retry error (C2 error) |

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET UND SICHEREITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLING LASERSTRÅLING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VIGYAZAT! : A BURKOLAT NYITÁSAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

This caution label is located inside the unit.

**CAUTION**
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

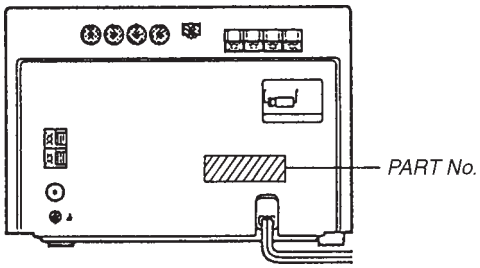
### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

### Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

### MODEL IDENTIFICATION — BACK PANEL —




| MODEL | PARTS No. |
|---|---|
| AEP, UK, EE model | 4-993-849-5☐ |
| MY, SP, JE, HK, AR, AUS model | 4-993-849-6☐ |
| US, CND model | 4-993-849-7☐ |

- Abbreviation
  CND : Canadian model
  EE : East European model
  HK : Hong Kong model
  SP : Singapore model
  MY : Malaysia model
  AR : Argentine model
  AUS : Australian model
  JE : Tourist model

**SAFETY-RELATED COMPONENT WARNING !!**

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

**ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!**

**LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.**

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

### LEAKAGE

The AC leakage from any exposed metal part to earth Ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

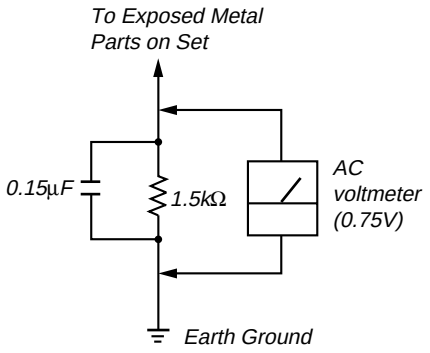



***Fig. A. Using an AC voltmeter to check AC leakage.***

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# SECTION 1
# SERVICING NOTE

**NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT**

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

**NOTES ON LASER DIODE EMISSION CHECK**

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

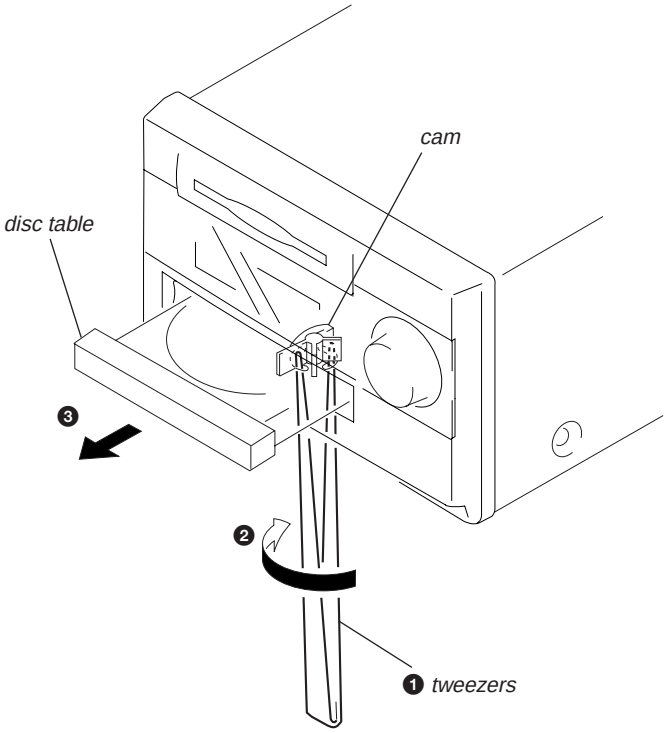
**LASER DIODE AND FOCUS SEARCH OPERATION CHECK**

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveform is output three times.

**Note:**
Be sure to connect all wires (including FFC) in the MD section before applying power or ICs may be damaged.

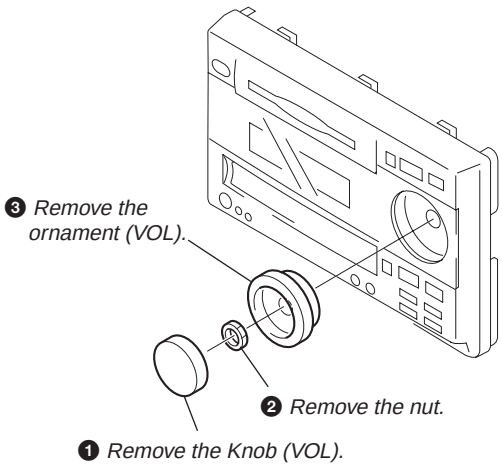
**DISC TABLE GETTING OUT PROCEDURE ON THE POWER SUPPLY IS OFF**

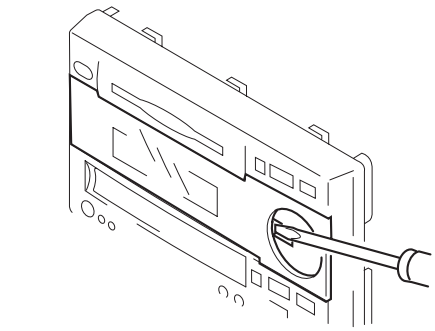
1. Insert the tweezers to a hole on bottom of the chassis as shown a figure, then tern fully it toward direction ❷.
2. Pull out the disc table.




**PRECAUTIONS ON REMOVING WINDOW (FL) FROM FRONT PANEL**

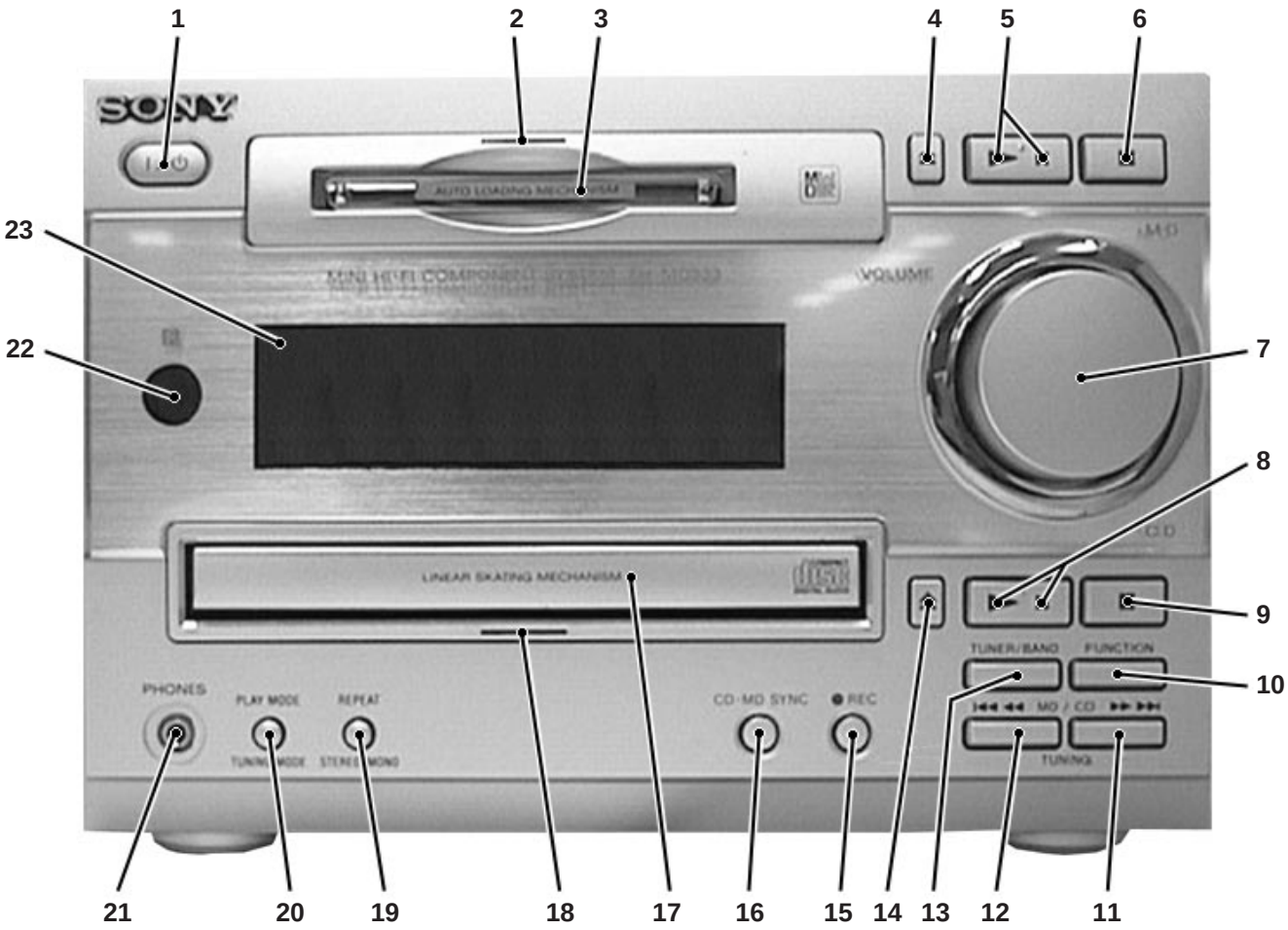
• Use the following procedure to prevent scratches on the front panel.



# SECTION 2
# GENERAL

**Front Panel**




**Location of Parts and Controls**

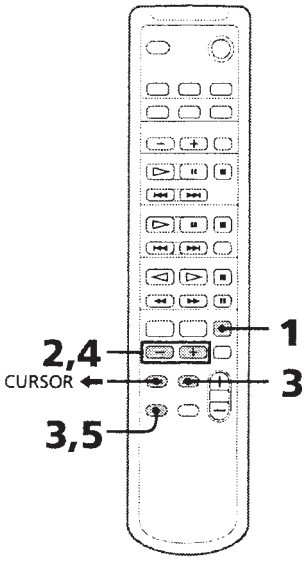
**1** I/⏻ button
**2** MD indicator
**3** MD disc slot
**4** ⏏ (MD) button
**5** ▶II (MD) button and indicator
**6** ■ (MD) button
**7** VOLUME knob
**8** ▶II (CD) button and indicator
**9** ■ (CD) button
**10** FUNCTION button
**11** MD/CD ▶▶ ▶▶I/TUNING + button
**12** MD/CD I◀◀ ◀◀/TUNING – button
**13** TUNER/BAND button
**14** ⏏ (CD) button
**15** ● REC button and indicator
**16** CD-MD SYNC button
**17** CD disc tray
**18** CD indicator
**19** REPEAT/STEREO/MONO button
**20** PLAY MODE/TUNING MODE button
**21** PHONES jack
**22** Remote sensor
**23** Display window

This section is extracted from instruction manual.

# Step 2: Setting the time

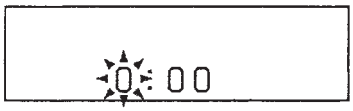
You must set the time before you can use the timer functions.

The clock is on a 24-hour system for the European model, and a 12-hour system for other models.
The European model is used for illustration purpose.




**1** Press CLOCK/TIMER SET while the power is off.
The clock appears and the hour indication flashes.

**2** Press +/– to set the hour.




**3** Press ENTER/YES or CURSOR →.
The minute indication flashes.

**4** Press +/– to set the minute.

**5** Press ENTER/YES.
The clock starts.

### If you have made a mistake

Press CURSOR ← or → repeatedly so that the incorrect item flashes, then set it again.

### To change the preset time

You can change the preset time while the power is on.

1 Press CLOCK/TIMER SET.
2 Press +/– repeatedly until "CLOCK SET?" appears.
3 Press ENTER/YES.
4 Repeat steps 2 through 5.

### Tips

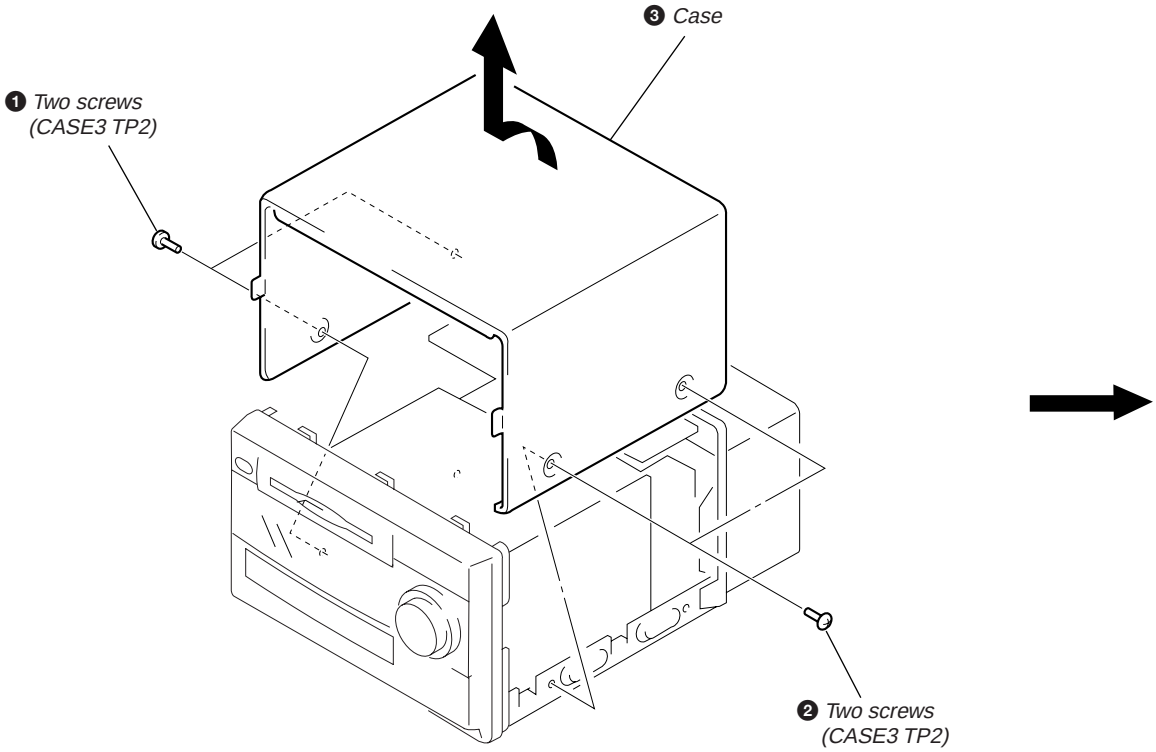
- The built-in clock shows the time in the display while the power is off.
- The upper dot flashes for the first half of a minute (0 to 29 seconds), and the lower dot flashes for the last half of a minute (30 to 59 seconds).

6

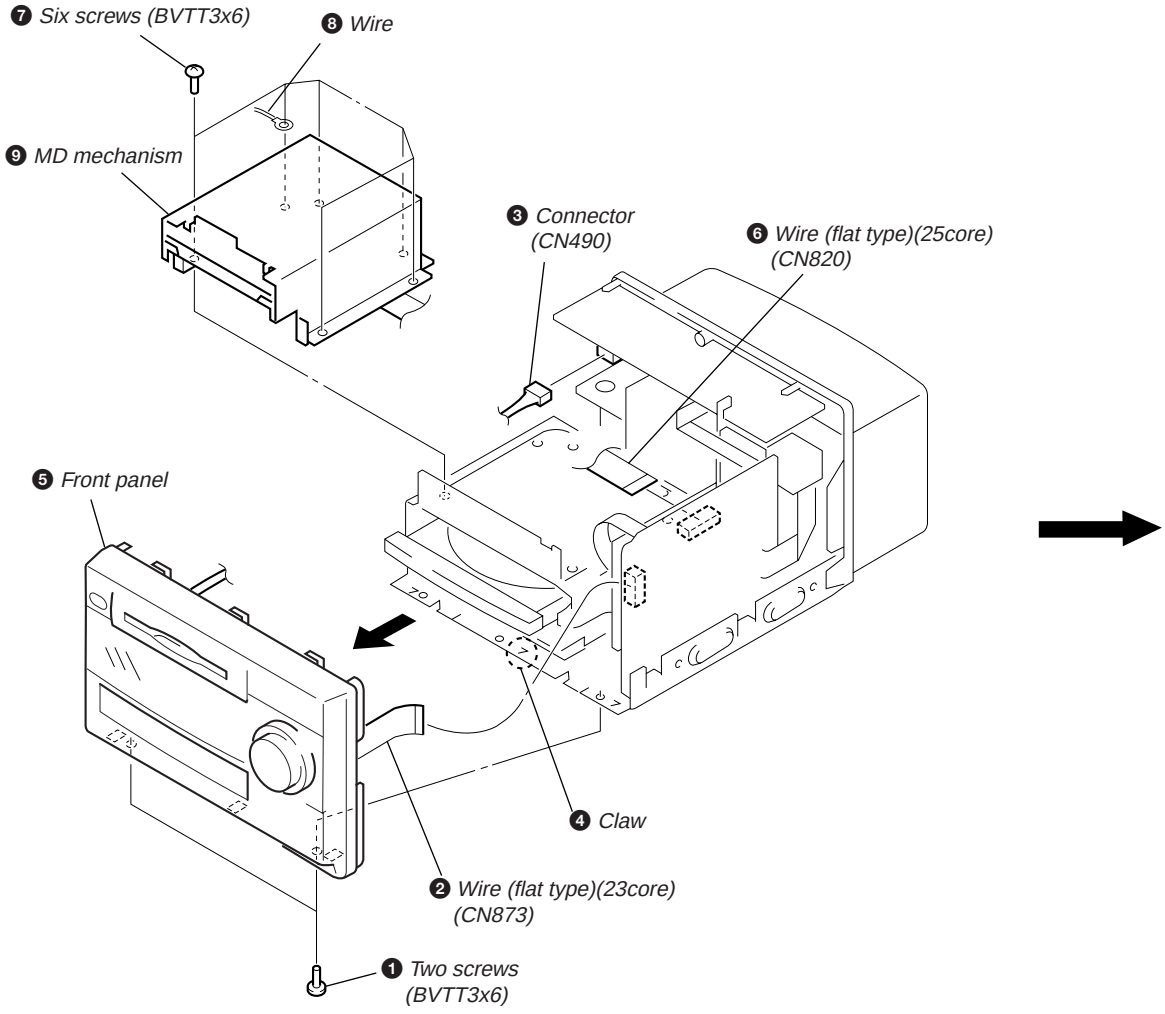
# SECTION 3
# DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

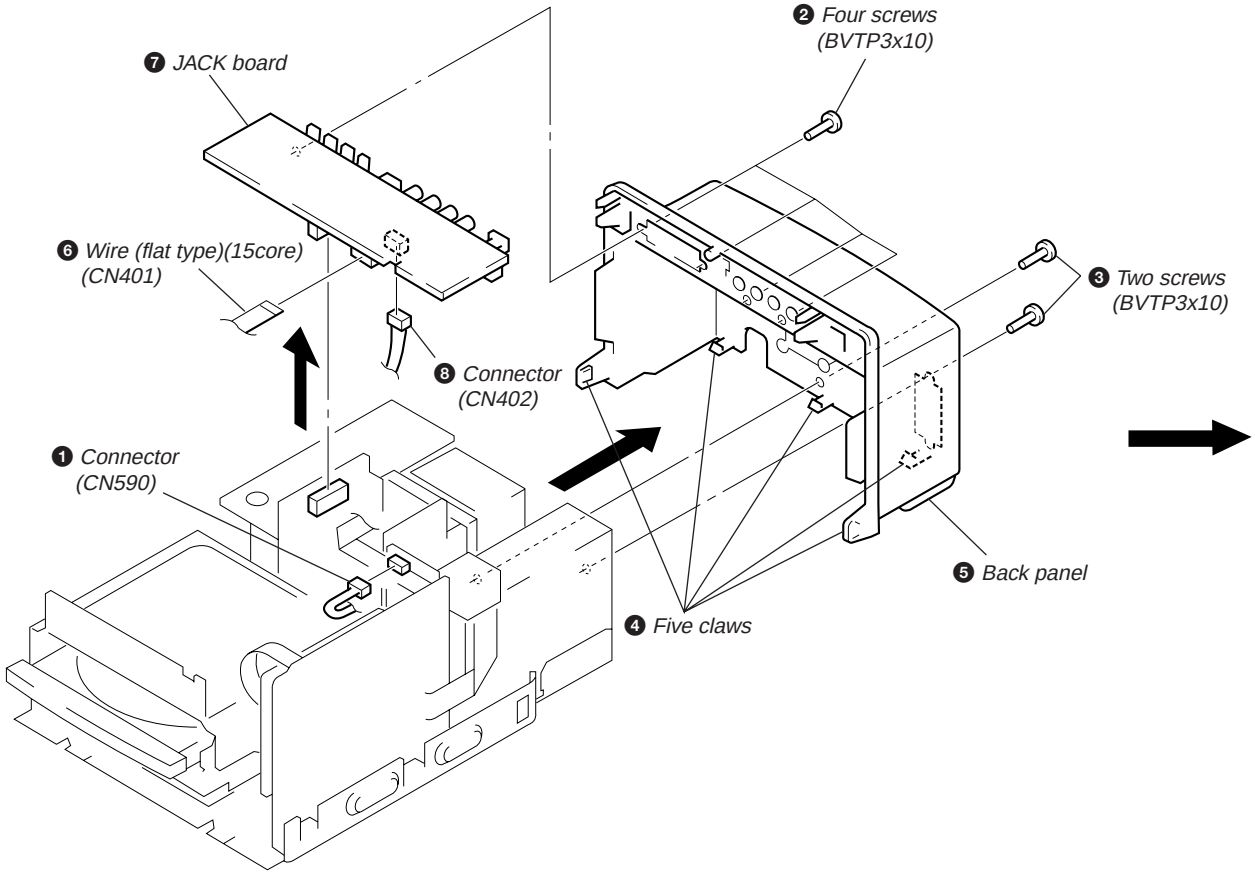
## 3-1. CASE



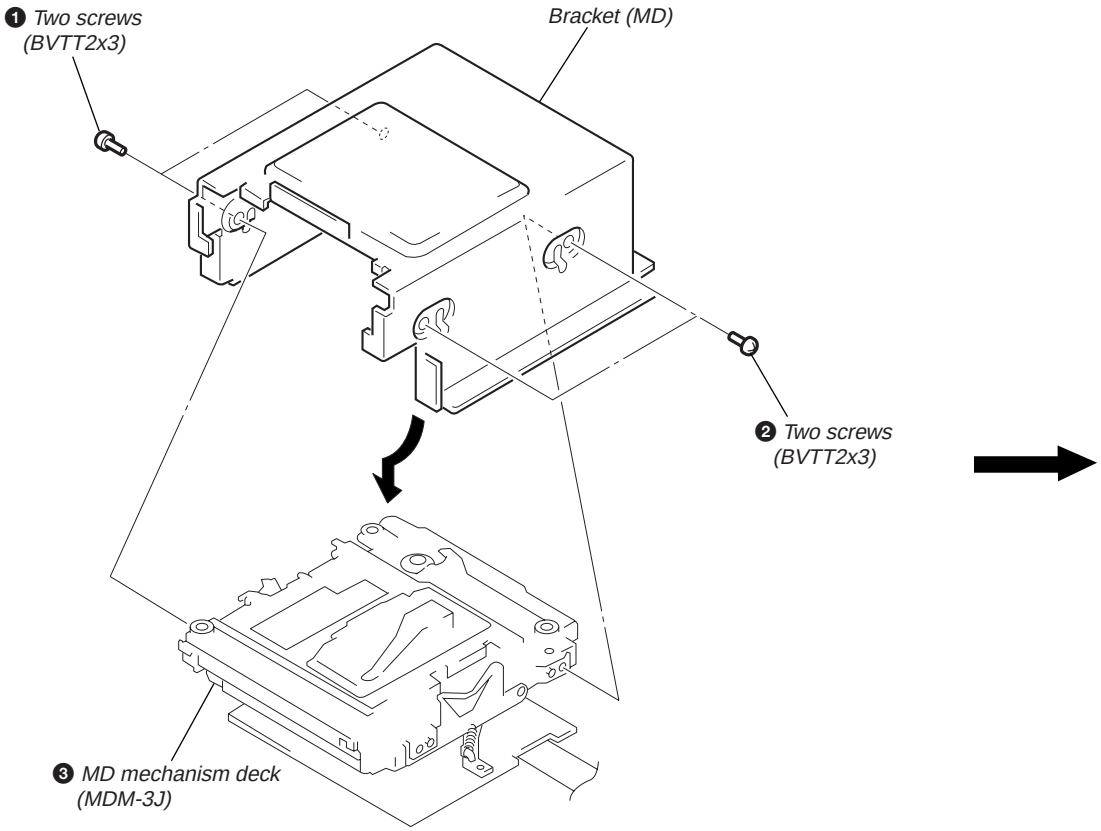

## 3-2. FRONT PANEL/MD MECHANISM DECK SECTION



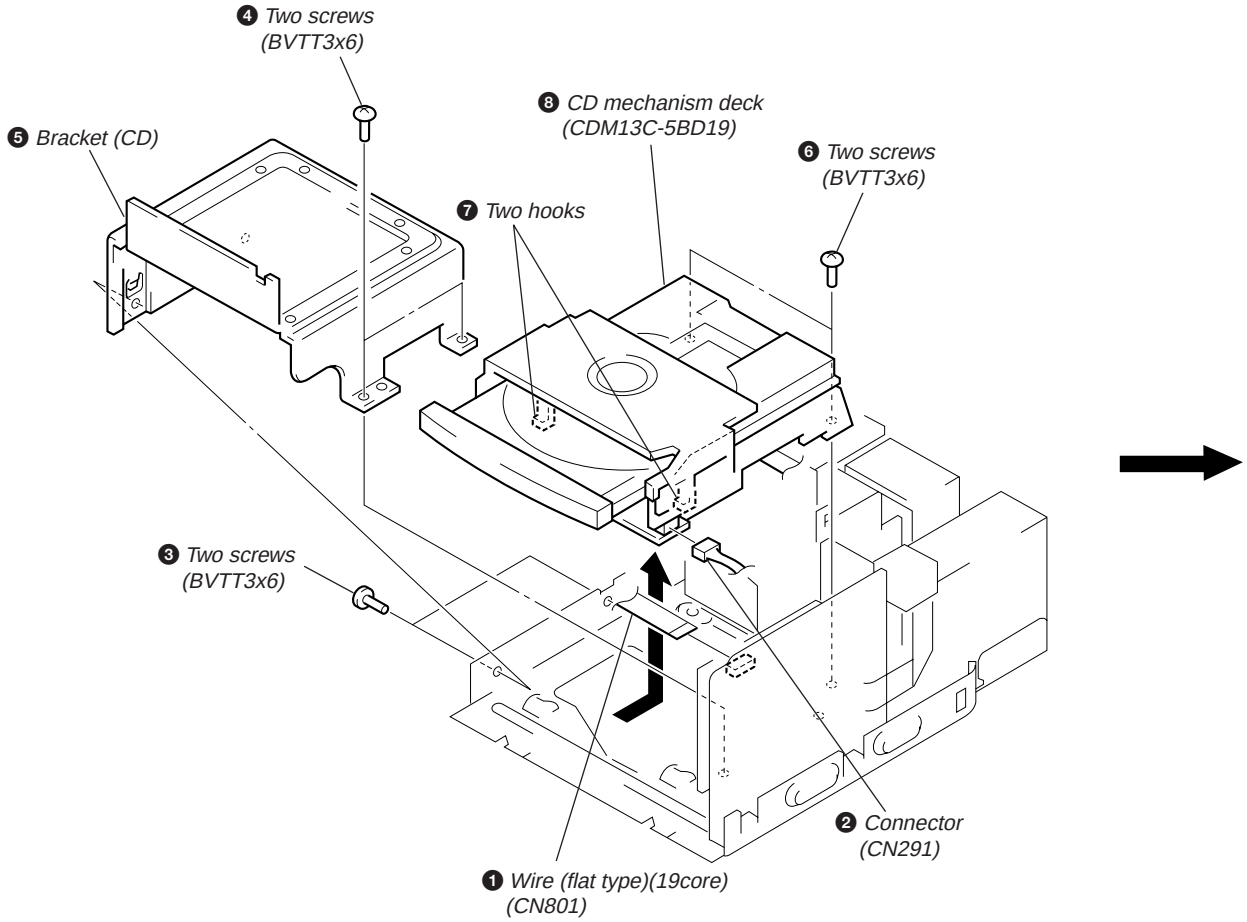
### 3-3. BACK PANEL, JACK BOARD



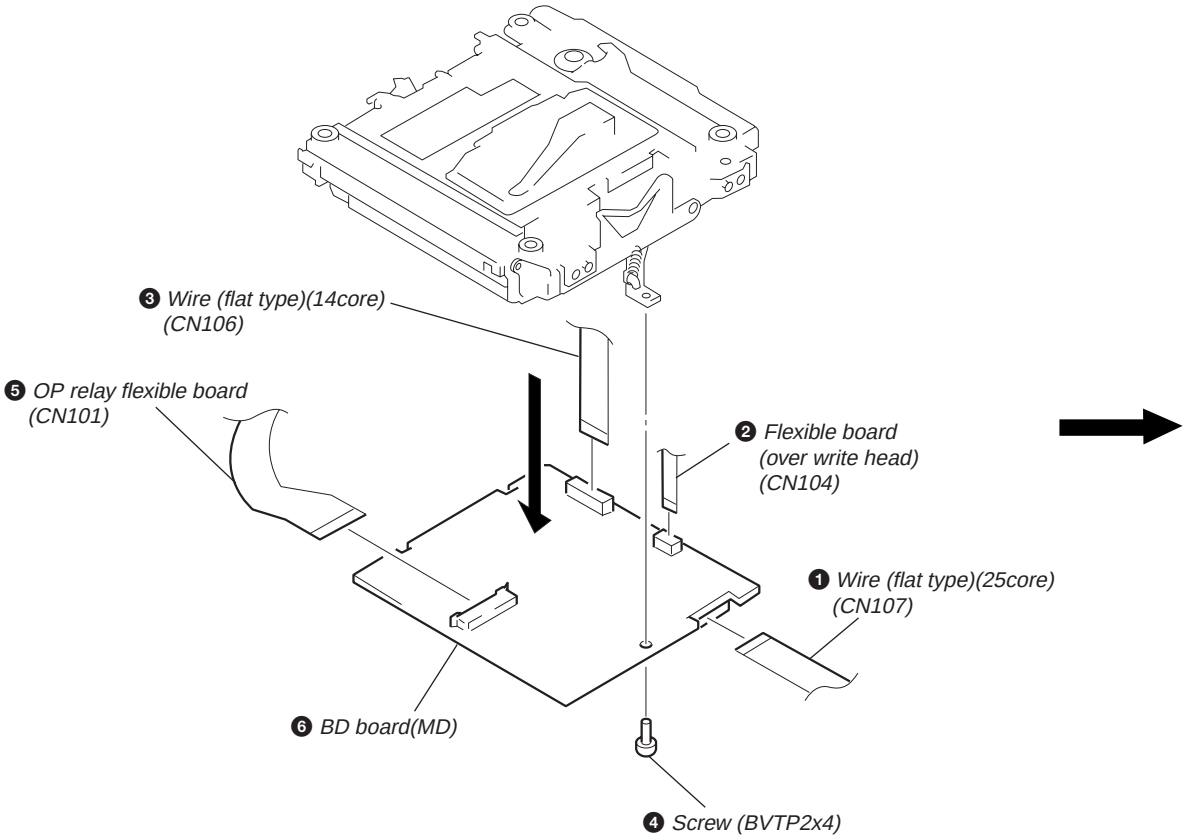

### 3-4. MD MECHANISM DECK (MDM-3D)



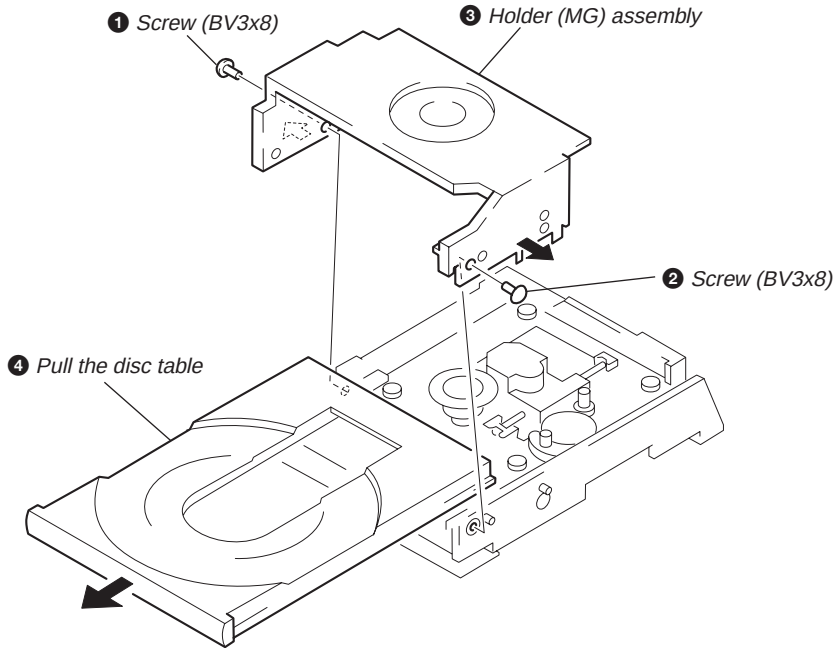
### 3-5. CD MECHANISM DECK (CDM13C-5BD19)



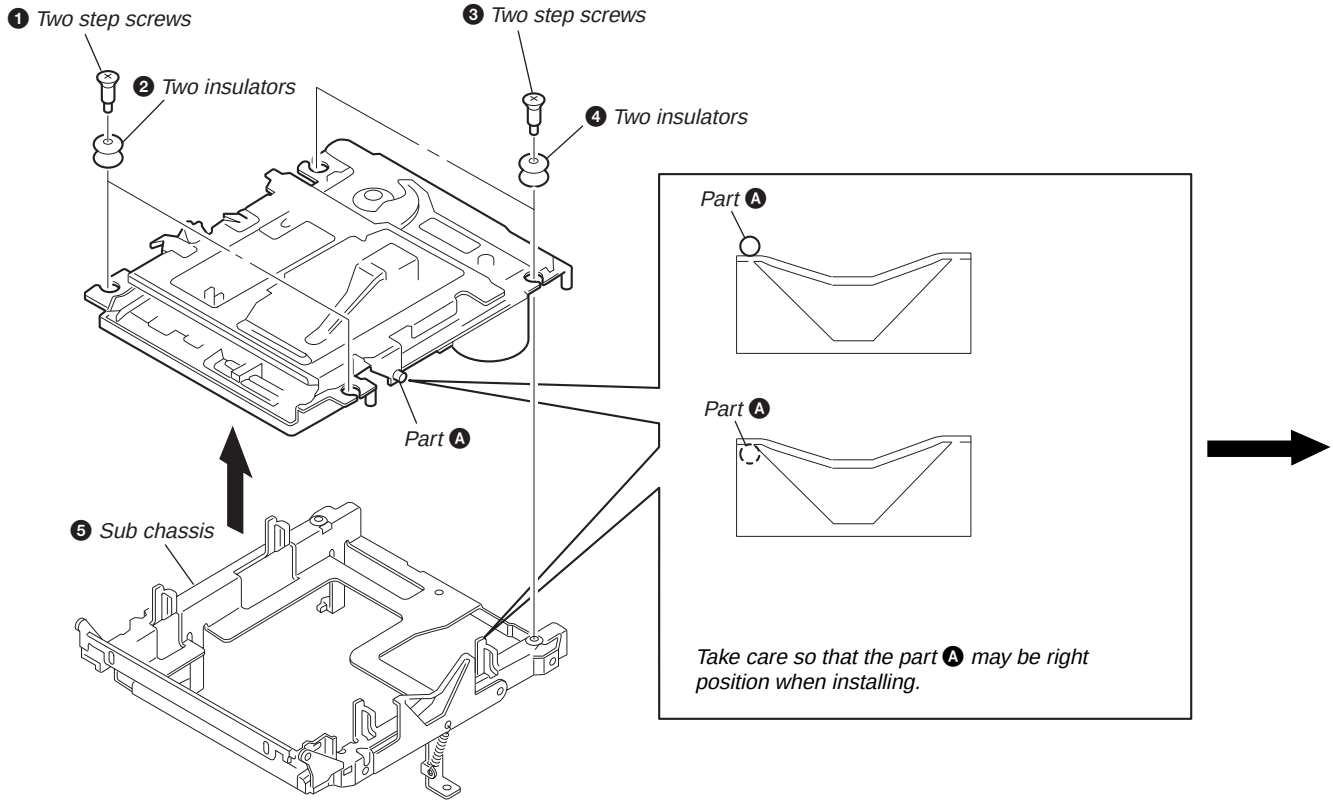

### 3-6. BD (MD) BOARD



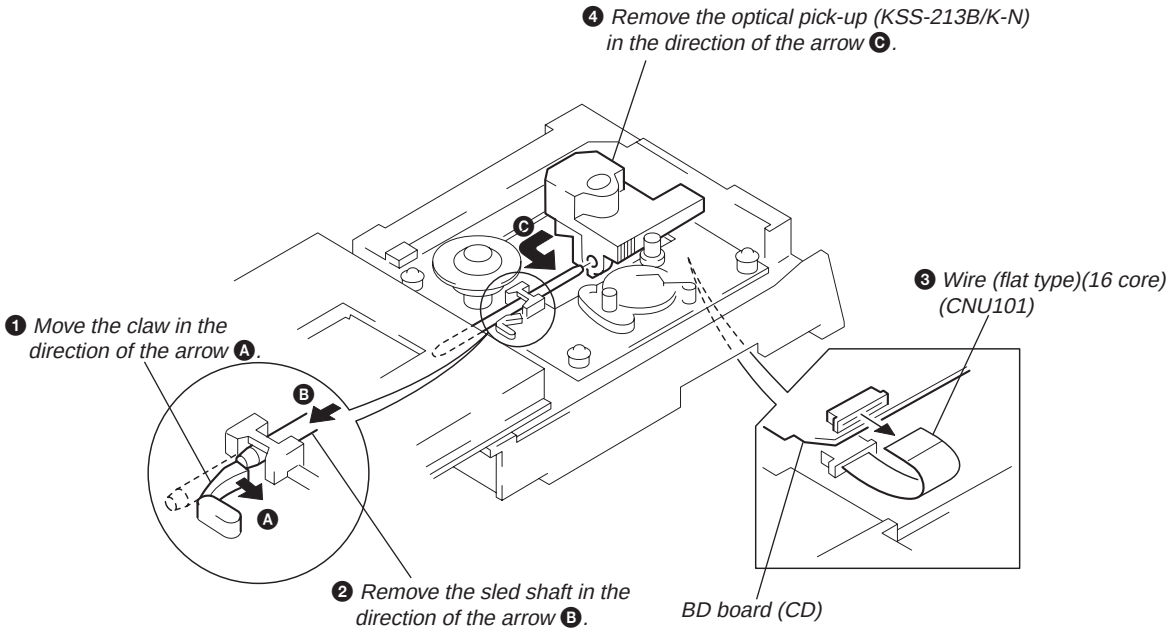
### 3-7. DISC TABLE



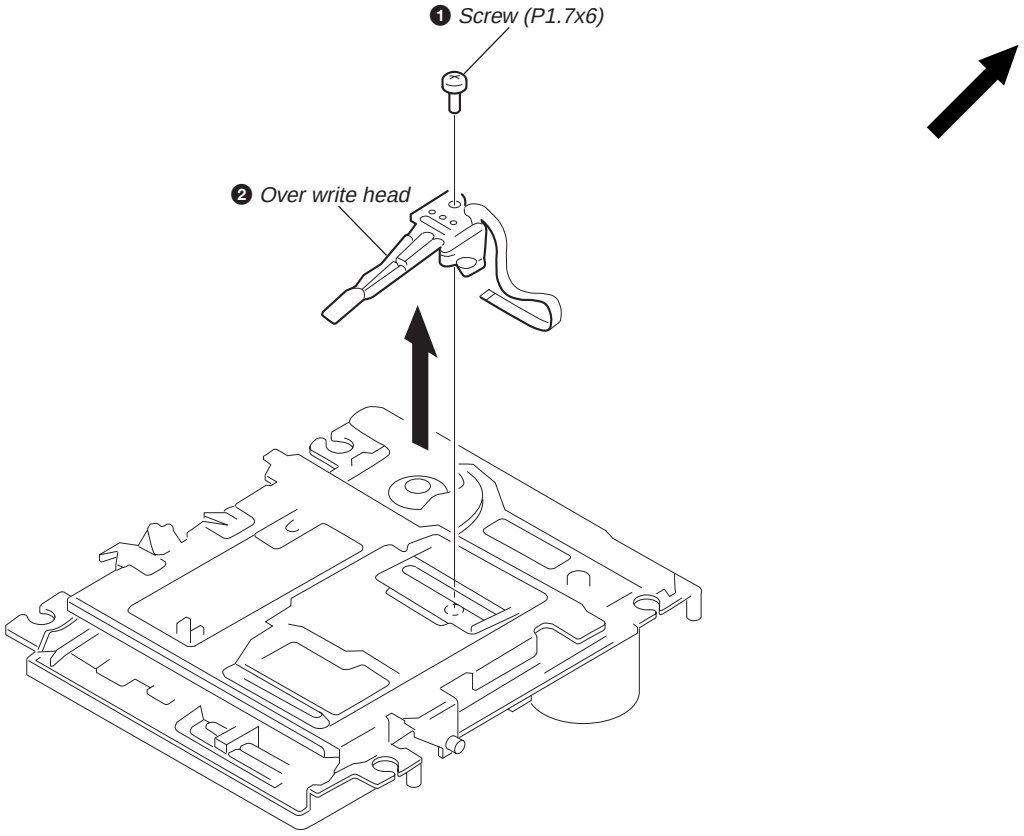

### 3-8. SUB CHASSIS


❶ Two step screws
❸ Two step screws
❷ Two insulators
❹ Two insulators
Part Ⓐ
❺ Sub chassis
Part Ⓐ
Part Ⓐ
Take care so that the part Ⓐ may be right position when installing.

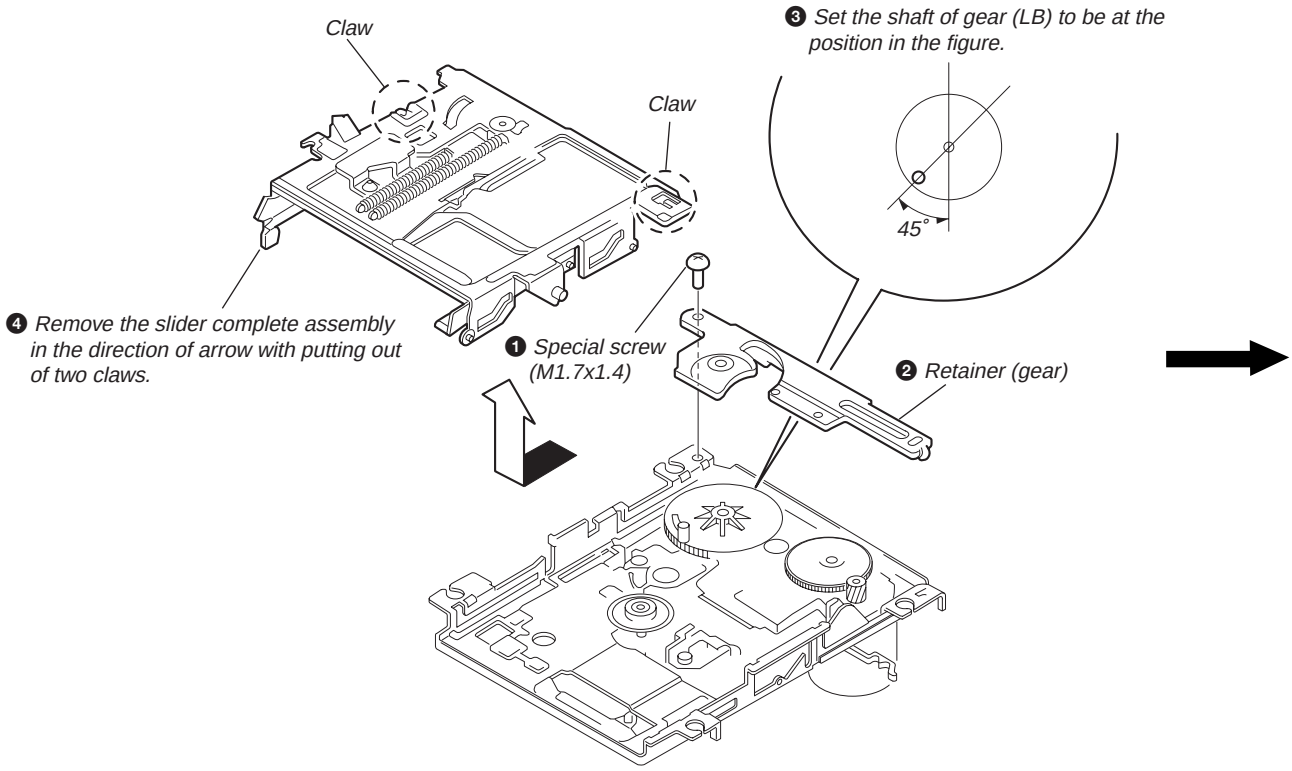
### 3-9. OPTICAL PICK-UP (KSS-213B/K-N)


❹ Remove the optical pick-up (KSS-213B/K-N) in the direction of the arrow Ⓒ.
❸ Wire (flat type)(16 core) (CNU101)
❶ Move the claw in the direction of the arrow Ⓐ.
Ⓑ
Ⓐ
❷ Remove the sled shaft in the direction of the arrow Ⓑ.
BD board (CD)

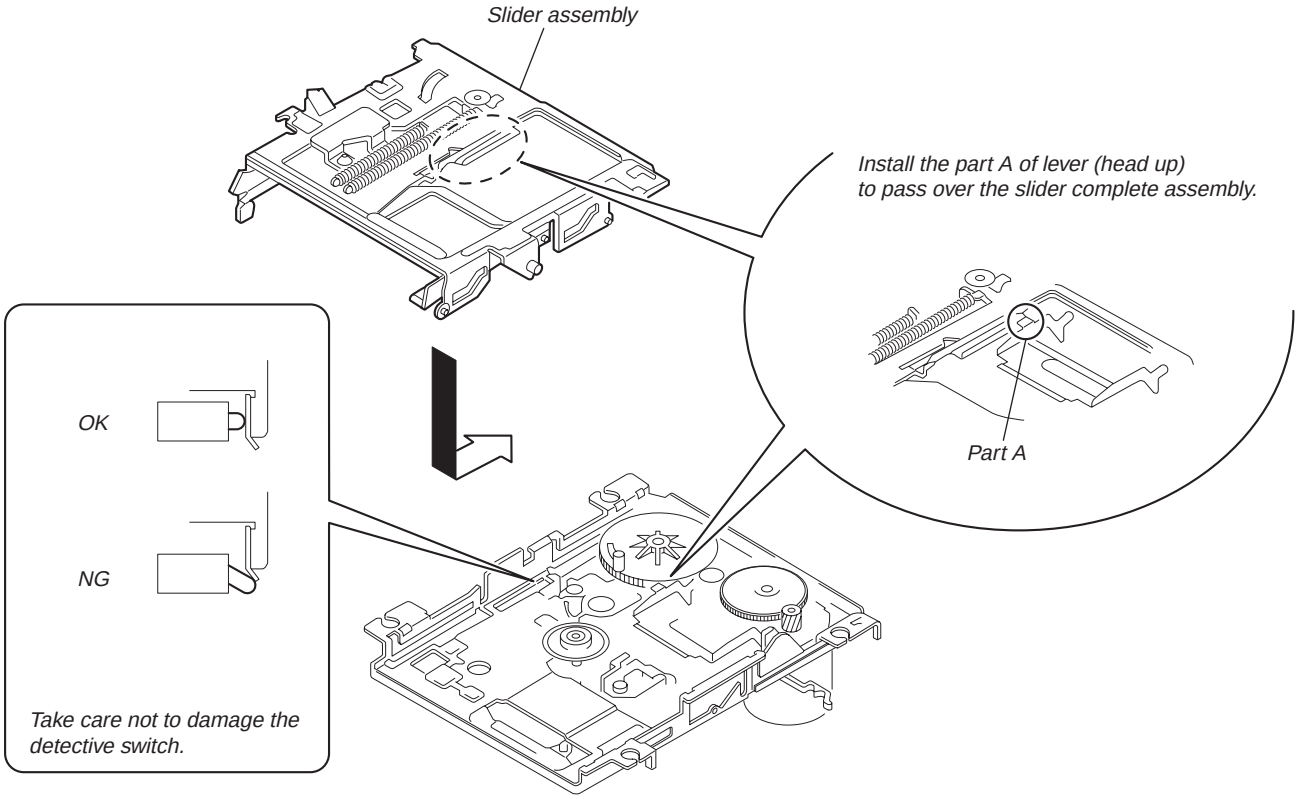
### 3-10. OVER WRITE HEAD



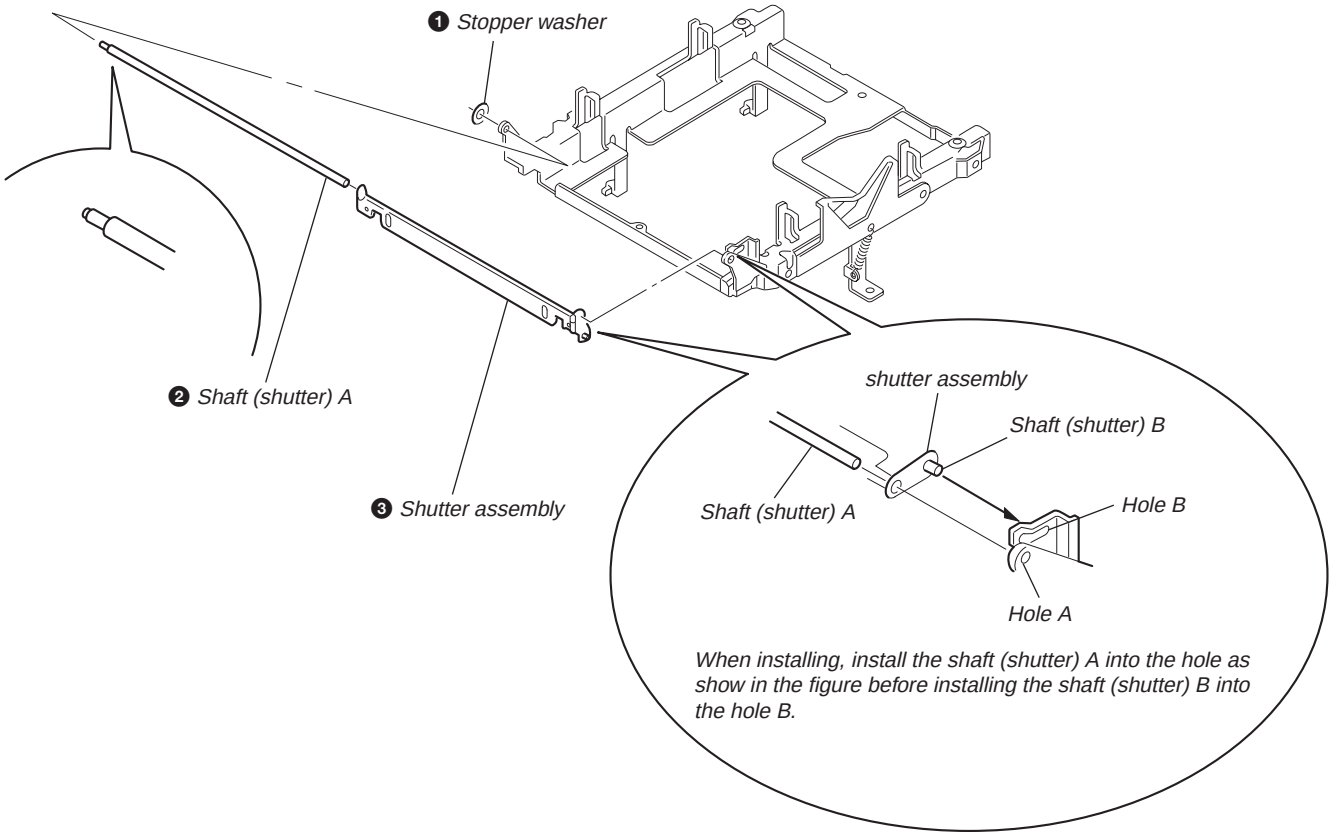
### 3-11. SLIDER COMPLETE ASSY


Claw
Claw
❸ Set the shaft of gear (LB) to be at the position in the figure.
45°
❹ Remove the slider complete assembly in the direction of arrow with putting out of two claws.
❶ Special screw (M1.7x1.4)
❷ Retainer (gear)

**• Note for installation of Slider complete assembly**


Slider assembly
Install the part A of lever (head up) to pass over the slider complete assembly.
Part A
OK
NG
Take care not to damage the detective switch.

### 3-12. SHUTTER ASSY


❶ Stopper washer
❷ Shaft (shutter) A
❸ Shutter assembly
shutter assembly
Shaft (shutter) B
Shaft (shutter) A
Hole B
Hole A
When installing, install the shaft (shutter) A into the hole as show in the figure before installing the shaft (shutter) B into the hole B.

# SECTION 4
# SERVICE MODE

### Change-over of AM (MW) Tuner Step between 9 kHz and 10 kHz

• A step of AM (MW) channels can be changed over between 9 kHz and 10 kHz.

**Procedure:**

1. Press [I/⏻] button to turn the set ON.
2. Select the function "TUNER", and press [TUNER/BAND] button to select the BAND "AM (MW)".
3. Press [I/⏻] button to turn the set OFF.
4. Press [FUNCTION] and [I/⏻] buttons simultaneously, and the display of fluorescent indicator tube changes to "AM (MW) 9 kHz STEP" or "AM (MW) 10 kHz STEP", and thus the channel step is changed over.

### Change-over of LW Tuner Step between 1 kHz and 3 kHz

• A step of LW channels can be changed over between 1 kHz and 3 kHz.

**Procedure:**

1. Press [I/⏻] button to turn the set ON.
2. Select the function "TUNER", and press [TUNER/BAND] button to select the BAND "LW".
3. Press [I/⏻] button to turn the set OFF.
4. Press [FUNCTION] and [I/⏻] buttons simultaneously, and the display of fluorescent indicator tube changes to "LW 1 kHz STEP" or "LW 3 kHz STEP", and thus the channel step is changed over.

### LED and Fluorescent Indicator Tube All Lit, Key Check Mode

**Procedure:**

1. Press [PLAY MODE] and [■ (MD)] buttons simultaneously.
2. LEDs and fluorescent indiator tube are all turned on.
3. When the [FUNCTION] button is pressed, the fluorescent indicator tube lights up in the order of; partial lighting 1 → partial lighting 2 → all lit → partial lighting 1 → ·····.
   When the [VOLUME] knob is rotated, the LED lighting pattern changes.
   To end without switching to the key check mode, press the [I/⏻] button to turn off the power.
4. Press [■ (CD)] button, and the key check mode is activated.
5. In the key check mode, the fluorescent indicator tube displays "KEY=0 JOG=0". Each time a button is pressed, "KEY=" value increases. However, once a button is pressed, it is no longer taken into account.
   "JOG=" Value increases like 1, 2, 3 ... if rotating VOLUME knob in clockwise direction, or it decreases like 10, 9, 8 ... if rotating in counterclockwise direction.
6. To exit from this mode, press order all buttons (15 buttons), the displays "KEY=OK", and press any button, or disconnect the power cord.

### SUB CLOCK CHECK

**Procedure:**

1. Connect an oscilloscope to IC601 pin ⑨① and ground of the MAIN board.
2. Press [PLAY MODE] and [■ (MD)] buttons simultaneously, and the fluorescent indiator tube displays "32.768 kHz (91)".
3. To check the signal on oscilloscope becomes 32 kHz square wave.
4. Press [I/⏻] button to exit.

# SECTION 5
# TEST MODE

## 5-1. PRECAUTIONS FOR USE OF TEST MODE

**Recording Laser Emission Mode and Operating Buttons**

- Continuous recording mode (CREC MODE)
- Traverse adjustment mode (EFBAL ADJUST)
- Laser power adjustment mode (LDPWR ADJUST)
- Laser power check mode (LDPWR CHECK)
- Traverse (MO) check (EF MO CHECK)
- Traverse (MO) adjustment (EF MO ADJUST)

## 5-2. SETTING THE TEST MODE

With the power off, press the ►II (MD) button while pressing the PLAY MODE button.

## 5-3. EXITING THE TEST MODE

Press the REPEAT button. The STANDBY state will be set and the test mode will be cleared.

## 5-4. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the VOLUME knob, ■ (CD) button, and ►II (CD) button.
The functions of these buttons are as follows.

| Function name | Function |
|---|---|
| VOLUME knob | Changes parameters and modes |
| ■ (CD) button | Proceeds onto the next step. Finalizes input. |
| ►II (CD) button | Returns to previous step. Stops operations. |

## 5-5. SELECTING THE TEST MODE

There are altogether 26 test modes, shown in the following table. Rotating the VOLUME knob to the right switches to the mode below the current mode in the table while rotating to the left switches to the mode above. Each time the ►II (CD) button is pressed, the display changes in the following order;

"TEMP CHECK" → "TEMP ADJUST" → "SLED MOVE" →"TEMP CHECK"…

| Display | Contents | Mark |
|---|---|---|
| TEMP CHECK | Temperature compensation offset check | |
| LDPWR CHECK | Laser power check | |
| EF MO CHECK | Traverse (MO) check | |
| EF CD CHECK | Traverse (CD) check | |
| FBIAS CHECK | Focus bias check | |
| CPLAY MODE | Continuous playback mode | |
| CREC MODE | Continuous recording mode | |
| Scurve CHECK | S curve check | (X) |
| VERIFY MODE | Non-volatile memory check | (X) |
| DETRK CHECK | Detrack check | (X) |
| TEMP ADJUST | Temperature compensation offset adjustment | |
| LDPWR ADJUST | Laser power adjustment | |
| EF MO ADJUST | Traverse (MO) adjustment | |
| EF CD ADJUST | Traverse (CD) adjustment | |
| FBIAS ADJUST | Focus bias adjustment | |
| EEP MODE | Nonvolatile memory control | (X) (!) |
| MANUAL CMD | Command transfer | (X) |
| SVDATA READ | Status display | (X) |
| ERR DP MODE | Error history display, clear | |
| SLED MOVE | Sled check | (X) |
| ACCESS MODE | Access check | (X) |
| 0920 CHECK | Outermost circumference check | (X) |
| WRITE sure? | Non-volatile memory Initialize | (X) (!) |
| HEAD ADJUST | Head position check | (X) |
| CPLAY2 MODE | Continuous playback mode | (X) |
| CREC2 MODE | Continuous recording mode | (X) |
| Ver @@@@@ | Microprocessor version display | |

- For details of each adjustment mode, refer to the items in "6. Electrical Adjustments". For details of "ERR DP MODE", refer to the self-diagnosis function on page 2.
- If other modes are set accidentally, press the ►II (CD) button to exit that mode.
- As items marked (X) in the "Mark" column are not used during servicing, they are not described here. If these modes are set accidentally, press the ►II (CD) button to exit the mode. Be especially careful with items marked (!) as they will overwrite the non-volatile memory, and as a result, the unit will not operate normally.

### 5-5-1. Operating the Continuous Playback Mode

1. Entering the continuous playback mode
   ① Set the disc in the unit. (Recordable discs or discs for playback only.)
   ② Rotate the VOLUME knob and display "CPLAY MODE".
   ③ Press the ■ (CD) button to change the display to "CPLAY MID".
   ④ When access completes, the display changes to "C = □□□□ AD = □□".
   **Note :** The numbers "□" displayed indicate the error rates and "ADER".

2. Changing the part to be played back
   ① When the ■ (CD) button is pressed during continuous playback, the display changes as below, and the played back part can be changed.

"CPLAY MID" → "CPLAY OUT" → "CPLAY IN" →

   ② When access completes, the display changes to "C1 = □□□□ AD = □□".
   **Note :** The numbers "□" displayed indicate the error rate and "ADER".

3. Ending the continuous playback mode
   ① Press the ▶II (CD) button. The display changes to "CPLAY MODE".
   ② Press the ⏏ (MD) button to remove the disc.
   **Note :** The playback start addresses for IN, MID, and OUT are as follows. To display the playback position address on the display, press the I/⏻ button to display "CPLAY (□□□□)".
   IN: 40h cluster
   MID: 300h cluster
   OUT: 700h cluster

### 5-5-2. Operating the Continuous Recording Mode

1. Entering the continuous recording mode
   ① Set a recordable disc in the unit. (Refer to Note 3.)
   ② Rotate the VOLUME knob and display "CREC MODE".
   ③ Press the ■ (CD) button to change the display to "CREC MID".
   ④ When access completes, the display changes to "CREC (□□□□)" and the **REC** display lights up.
   **Note :** The numbers "□" displayed indicate the recording position address.

2. Changing the part to be recorded
   ① When the ■ (CD) button is pressed during continuous recording, the display changes as below and the recorded part can be changed. The **REC** display is off while changing.
   "CPLAY MID" → "CPLAY OUT" → "CPLAY IN"
   ② When access completes, the display changes to "CREC MODE" and the **REC** display lights up.
   **Note :** The numbers "□" displayed indicate the recording position address.

3. Ending the continuous recording mode
   ① Press the ▶II (CD) button. The display changes to "CREC (□□□□)", and the **REC** display lights up.
   ② Press the ⏏ (MD) button to remove the disc.
   **Note 1 :** The recording start addresses for IN, MID, and OUT are as follows.
   IN: 40h cluster
   MID: 300h cluster
   OUT: 700h cluster
   **Note 2 :** The ▶II (CD) button can be used to stop recording anytime.
   **Note 3 :** Do not perform continuous recording for long periods of time above 5 minutes.
   **Note 4 :** During continuous recording, be careful not to apply vibration.

### 5-5-3. Non-Volatile Memory Mode (EEP MODE)

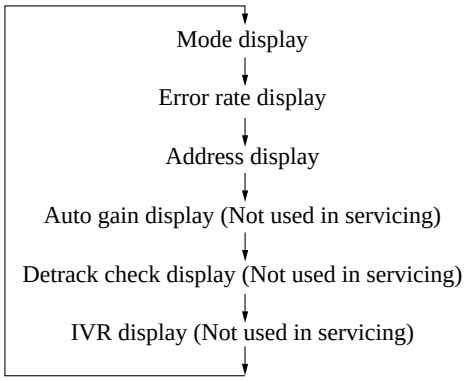
This mode reads and writes the contents of the non-volatile memory.
It is not used in servicing. If set accidentally, press the ▶II (CD) button immediately to exit it.

## 5-6. FUNCTIONS OF OTHER BUTTONS

| Function | Contents |
|---|---|
| ▷II | Sets continuous playback when pressed in the STOP state. Turns ON/OFF the tracking servo when pressed during continuous playback. |
| ■ | Stops the continuous playback and recording. |
| ▶▶ ▶▶I | Moves the sled to the external circumference only while the button is pressed. |
| I◀◀ ◀◀ | Moves the sled to the internal circumference only while the button is pressed. |
| CD-MD SYNC | Switches between pit and groove when pressed. |
| I/⏻ | Switches the displayed contents when pressed. |
| ⏏ (MD) | Ejects the disc. |
| REPEAT | Exits the test mode. |

## 5-7. DISPLAYS DURING TEST MODE

The display changes according to the following sequence each time the I/⏻ button is pressed.


Mode display
Error rate display
Address display
Auto gain display (Not used in servicing)
Detrack check display (Not used in servicing)
IVR display (Not used in servicing)

### 1. Mode display

"TEMP ADJUST" and "CPLAYMODE" are displayed.

### 2. Error rate display

The error rate is displayed as follows.
C = □□□□ AD = □□
C = :Indicates the C1 error.
AD = :Indicates ADER.

### 3. Address display

The address is displayed as follows. (MO: Recordable disc, CD: Disc for palyback only)
When the CD-MD SYNC button is pressed, the display will switch between groove and pit.

h = □□□□ s = □□□□ (MO pit and CD)
h = □□□□ a = □□□□ (MO groove)
h = Indicates the header address.
s = Indicates the SUBQ address.
a = Indicates the ADIP address.

**Note:** Displayed as "–" when servo is operated.

### 4. Auto gain display (Not used in servicing)

The auto gain is displayed as follows.
AG = □□ / □□. □□

### 5. Detrack check display (Not used in servicing)

The detrack is displayed as follows.
ADR = □□□□□□□

### 6. IVR display (Not used in servicing)

IVR is displayed as follows.
[□□][□□][□□

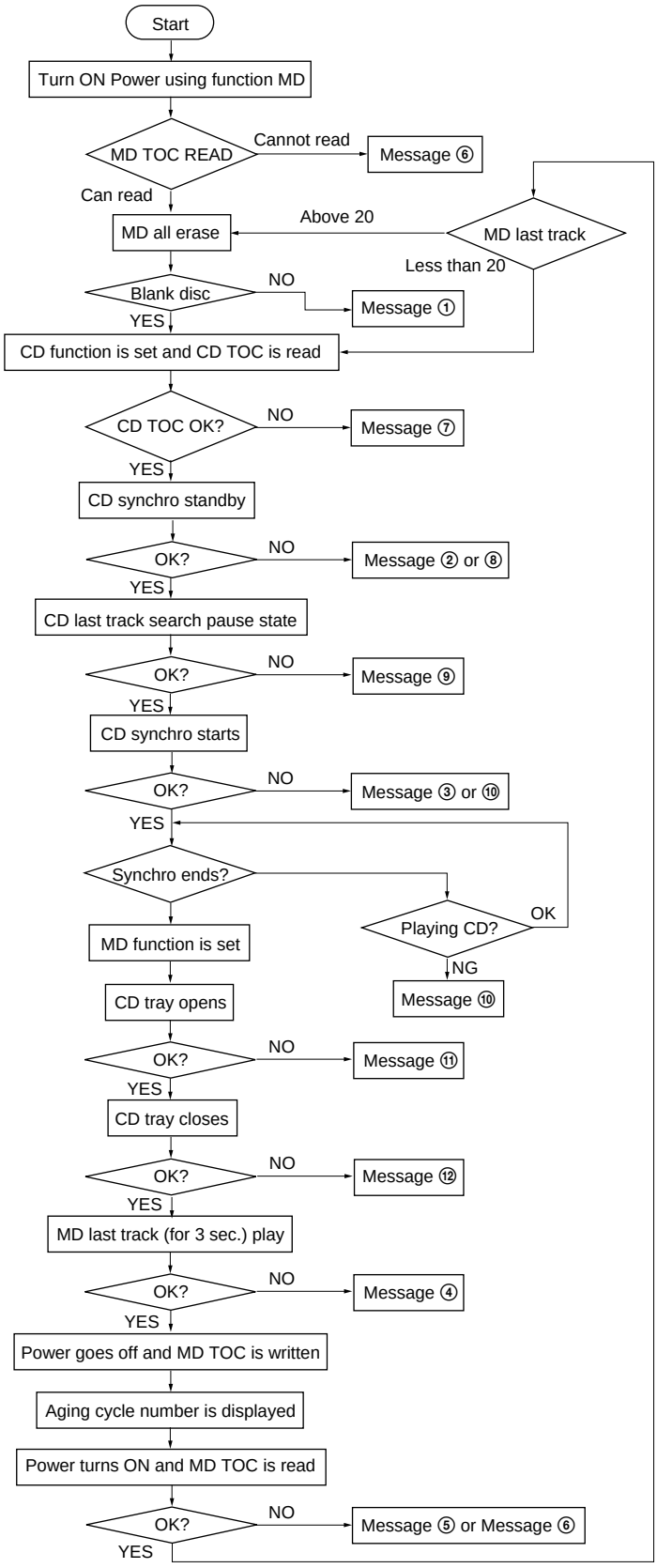
### Meanings of other displays

| Display | Contents | |
|---|---|---|
| | When Lit | When Off |
| REC | Recording mode ON | Recording mode OFF |
| ATT | ABCD adjustment completed | |
| OVER | Tracking offset cancel ON | Tracking offset cancel OFF |
| SHUFFLE | Focus auto gain OK | |
| TRACK | Pit | Groove |
| DISC | High reflection rate | Low reflection |
| LEVEL-SYNC | CLV-S | CLV-A |
| SYNC | CLV LOCK | CLV UNLOCK |

## 5-8. AGING MODE

This unit is provided with an aging mode.
In this mode, MD and CD operations are performed alternately according to the following sequence.
Aging will be carried out continuously unless an error occurs.
If an error occurs, the status and number of cycles are displayed alternately, and operations stop. (Refer to Table 1.)

### Aging Mode Sequence



**Procedure:**

1. Load a recordable disc (MD) and CD test disc (YEDS-18). (*Note 1)
2. While pressing the [PLAY MODE] button, press the [▶II (CD)] button.
3. Aging is executed in the above sequence.
4. To end, press the [■ (CD or MD)] button.

*__Note 1:__ Any CD can be used, but one with a short last track is recommended. The time of one aging cycle will be longer if the last track is long.
Also use a CD in which the length of the last track x 20 does not exceed the recording time of the recording MD.

**Table 1. Messages and Main Causes When Aging Stops**

| No | Error Messages | Details of Error | Main Causes |
|---|---|---|---|
| ① | MD A Erase NG | Cannot MD all erase. | A disc for playback only was used. The rec-proof tab is set to protect. Disc error, etc. |
| ② | MD R-Pause NG | Cannot set MD Rec Pause. | Disc is full, etc. |
| ③ | MD D-input NG | Cannot lock MD digital in. | ———————— |
| ④ | MD Play NG | Cannot play last track. | Access error, etc. |
| ⑤ | MD TOC NG | MD TOC are different. | No. of total tracks does not match logic value. |
| ⑥ | MD No Disc NG | Cannot read MD TOC. | Disc error, etc. |
| ⑦ | CD No Disc NG | Cannot read CD TOC. | Optical defect, spindle defect (including motor), cannot read Q data, disc defect (scratches, etc.), bad focus, bad GFS, etc. |
| ⑧ | CD Pause NG | Cannot set CD pause in CD synchro mode. | Disc defect (scratches, etc.), cannot read Q data, etc. |
| ⑨ | CD Search NG | Cannot search last track on CD. | Optical defect, sled, tracking defect (including motor), cannot read Q data, disc defect (scratches, etc.). |
| ⑩ | CD Play NG | Cannot play last track on CD. | Optical defect, cannot read Q data, disc defect (scratches, etc.), etc. |
| ⑪ | CD Open NG | Cannot open CD tray. | LOAD OUT SW defect |
| ⑫ | CD Close NG | Cannot close CD tray. | LOAD IN SW defect |

# SECTION 6
# ELECTRICAL ADJUSTMENTS

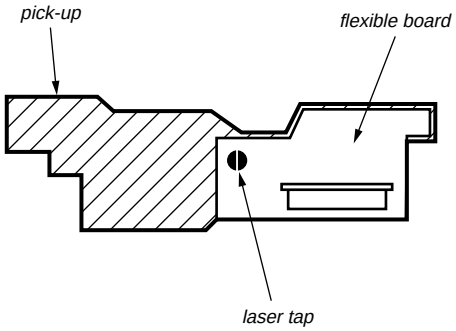
**MD SECTION**

## 6-1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSINON

When checking the emission of the laser diode during adjustments, never view directly from the top as this may cause blindness.

## 6-2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, solder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.




***Optical pick-up flexible board***

## 6-3. PRECAUTIONS FOR ADJUSTMENTS

1) When replacing the following parts, perform adjustments and checks marked O in the order shown in the following table.

| | Optical Pick-up | BD Board | | |
|---|---|---|---|---|
| | | IC171 | D101 | IC101, IC121, IC192 |
| 1. Temperature compensation offset adjustment | × | O | O | O |
| 2. Laser power adjustment | O | O | × | O |
| 3. Traverse adjustment | O | O | × | O |
| 4. Focus bias adjustment | O | O | × | O |
| 5. Error rate check | O | O | × | O |

2) Perform the adjustment in the test mode.
   After completing the adjustments, exit the test mode.
3) Perform the adjustments in the order shown.
4) Use the following tools and measuring devices.
   - Check disc (MD) TDYS-1
     (Parts No. 4-963-646-01)
   - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
     or
     MD Laser power meter 8010S (Parts No. J-2501-145-A)
   - Oscilloscope (Measure after calibration of the probe).
   - Digital voltmeter
   - Thermometer
5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope. (The VC and ground will short-circuit.)

**Note :** When performing laser power checks and adjustment (electrical adjustment), use of the new MD laser power meter 8010S (J-2501-145-A) instead of the conventional laser power meter is convenient.
It sharply reduces the time and trouble to set the laser power meter sensor onto the objective lens of the pick-up.

## 6-4. CREATING THE CONTINUOUSLY RECORDED DISC

- The disc is used for the focus bias adjustment and error rate check. The following describes how to create a continuously recorded disc.

1. Insert a disc (blank disc) commercially available.
2. Rotate the VOLUME knob to display “CREC MODE”.
3. Press the ■ (CD) button to display “CREC MID”.
   “CREC (0300)” will be momentarily displayed and recording started.
4. Complete recording within 5 minutes.
5. Press the ►II (CD) button and stop recording .
6. Press the ≜ (MD) button and remove the disc.

Create the continuous recorded disc for adjusting the focus bias and checking the error rate as described above.

**Note :**

- Be careful not to apply vibrations during continuous recording.

## 6-5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the current temperature data in the non-volatile memory as the 25 °C standard data.

**Notes:**

1. Normally, this adjustment should not be preformed.
2. Set the surrounding temperature to 22 to 28 °C when performing this adjustment.
   Also perform this adjustment immediately after the power is turned on when the internal temperature of the unit is the same as the surrounding temperature (22 to 28 °C).
3. After replacing D101, perform this adjustment after the temperature of parts reach the surrounding temperature.

**Adjusting Procedure:**

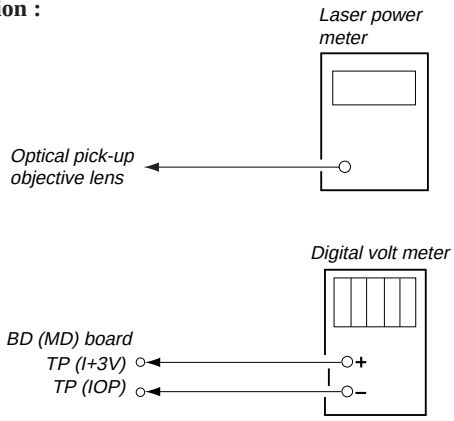
1. Rotate the VOLUME knob, to display “TEMP ADJUST”.
2. Press the ■ (CD) button and select the “TEMP ADJUST” mode.
3. “TEMP= ▯▯ ” and the current temperature data are displayed.
4. To save the data: Press the ■ (CD) button.
   If not saving the data: Press the ►II (CD) button.
5. When the ■ (CD) button is pressed, “TEMP= ▯▯ SAVE” is displayed, and then “TEMP ADJUST” is displayed again.
   “TEMP ADJUST” is displayed again immediately after the ►II (CD) button is pressed.

**Specifications:**

TEMP= ▯▯ should be E0 to EF. F0 to FF, 00 to 0F, 10 to 1F and 20 to 2F.

## 6-6. LASER POWER ADJUSTMENT

**Connection :**




**Adjusting Procedure:**

1. Set the laser power meter on the objective lens of the optical pick-up from the disc slot. (If it cannot be set properly, press the |◀◀ ◀◀ or ▶▶ ▶▶| button to move the optical pick-up).
   Connect the digital voltmeter to TP (I+3V) and TP (IOP) of the BD (MD) board.
2. Rotate the VOLUME knob to display "LDPWR ADJUST". (Laser power: For adjustment)
3. Press the ■ (CD) button once to display "LD 0.9 mW $ ".
4. Rotate the VOLUME knob so that the laser power meter reads 0.86 to 0.92 mW. Set the range knob of the laser power meter to 10 mW, press the ■ (CD) button, and save the adjustment results in the non-volatile memory. ("LD SAVE $ " is displayed momentarily.)
5. "LD 7.0 mW $ " is next displayed.
6. Rotate the VOLUME knob so that the laser power meter reads 6.9 to 7.1 mW, press the ■ (CD) button, and save the adjustment results in the non-volatile memory. ("LD SAVE $ " is displayed momentarily.)

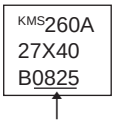
**Note:** Do not emit 7.0 mW continuously for more than 15 seconds.

7. Rotate the VOLUME knob to display "LDPWR CHECK".
8. Press the ■ (CD) button once to display "LD 0.9 mW $ ". Check that the laser power meter reading is 0.85 to 0.91 mW.
9. Press the ■ (CD) button another time to diaplay "LD 7.0 mW $ ".
   Check that the readings of the laser power meter and digital voltmeter become the specified value.

**Specified Value :**

Laser power meter reading : 7.0 ± 0.1 mW
Digital voltmeter reading : Value displayed on optical pick-up label ± 10%

(Optical pick-up label)

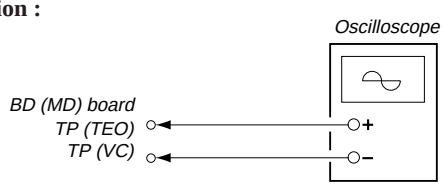



*Iop = 82.5 mA in this case*
*Iop (mA) = Digital voltmeter reading (mV)/1 (Ω)*

10. Press the ▶II (CD) button to display "LDPWR CHECK" and stop the laser emission.
    (The ▶II (CD) button is effective at all times to stop the laser emission.)

## 6-7. TRAVERSE ADJUSTMENT

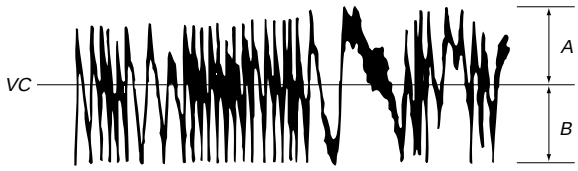
**Connection :**




**Adjusting Procedure:**

1. Connect an oscilloscope to TP (TEO) and TP (VC) of CN110 of the BD (MD) board.
2. Load a recordable disc (any available on the market). (Refer to Note 1.)
3. Press the |◀◀ ◀◀ or ▶▶ ▶▶| button to move the optical pick-up outside the pit.
4. Rotate the VOLUME knob to display "EFBAL ADJUST".
5. Press the ■ (CD) button to display "EFB = MO-R". (Laser power READ power/Focus servo ON/tracking servo OFF/ spindle (S) servo ON)
6. Rotate the VOLUME knob so that the oscilloscope waveform becomes the specified value. (Rotating the VOLUME knob changes the "EFB= " value and the waveform.) The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.
   (Read power traverse adjustment)

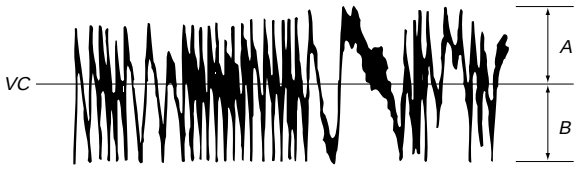
*(Traverse Waveform)*




*Specified value : A = B*

7. Press the ■ (CD) button and save the adjustment results in the non-volatile memory (displayed as "EFB = SAVE" momentarliy and then displayed as "EFB = MO-W").
8. Rotate the VOLUME knob so that the oscilloscope waveform becomes the specified value.
   (Rotating the VOLUME knob changes the "EFB= " value and the waveform.) The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.
   (Write Power Traverse Adjustment)

*(Traverse Waveform)*

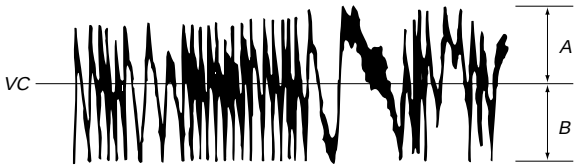



*Specified value : A = B*

9. Press the ■ (CD) button to save the adjustment results in the non-volatile memory (displayed as "EFB = SAVE" momentarliy).

10. Next “EFB = ▯▯ MO-P” is displaed, the optical pick-up moves to the internal circumference of the pit and servo is imposed.
11. Rotate the VOLUME knob so that the oscilloscope waveform becomes the specified value.
    The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.

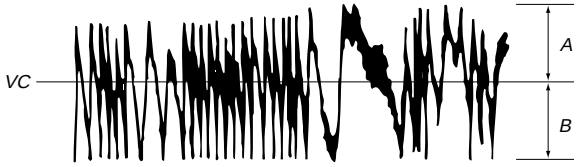
*(Traverse Waveform)*




*Specified value : A = B*

12. Press the ■ (CD) button and save the adjustment results in the non-volatile memory (displayed as “EFB = ▯▯ SAVE” momentarliy).
    “EFBAL: CD is next displayed and the disc stops rotating automatically.
13. Press the ⏏ (MD) button and remove the disc.
14. Load the check disc (MD) TDYS-1.
15. Press the ■ (CD) button to display “EFB = ▯▯ CD”. The servo is imposed automatically.
16. Rotate the VOLUME knob so that the oscilloscope waveform becomes the specified value.
    The waveform changes by about 2% everytime when adjusted. Adjust as close as possible to the specified value.

*(Traverse Waveform)*

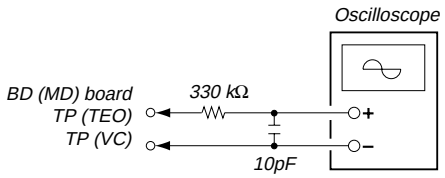



*Specified value : A = B*

17. Press the ■ (CD) button and save the adjustment results in the non-volatile memory after “EFB = ▯▯ SAVE” is momentarliy displayed.
    “EFBAL ADJUST” is next displayed.
18. Press the ⏏ (MD) button and remove the check disc (MD) TDYS-1.

**Note 1 :** The data will be overwritten on the MO and erased when a recorded disc is used in this adjustment.

**Note 2 :** If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



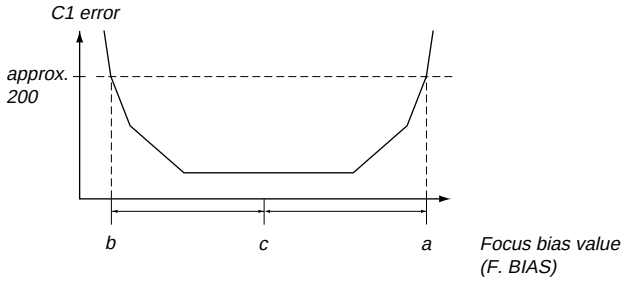

## 6-8. FOCUS BIAS ADJUSTMENT

**Adjusting Procedure :**

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. When “C1 = ▯▯▯▯ AD = ▯▯” is displayed, press the ▶II (CD) button.
5. Rotate the VOLUME knob to display “FBIAS ADJUST”.
6. Press the ■ (CD) button to display “ ▯▯▯▯/▯▯ a = ▯▯”.
   The first four digits indicate the C1 error rate, the two digits after the “/” indicate ADER and the two digits after “a =” indicate the focus bias value.
7. Rotate the VOLUME knob in the clockwise direction, and look for the focus bias value at which the C1 error rate becomes approximately approx. 200. (Refer to Note 2).
8. Press the ■ (CD) button to display “ ▯▯▯▯/▯▯ b = ▯▯”.
9. Rotate the VOLUME knob in the counterclockwise direction, and look for the focus bias value at which the C1 error rate becomes approx. 200.
   Check that the C1 error rate becomes almost equal to the value set in step 7.
10. Press the ■ (CD) button to display “ ▯▯▯▯/▯▯ c = ▯▯”.
11. Check that the C1 error rate is below 50 and that ADER is 00. and press the ■ (CD) button.
12. If the value of “(▯▯)” in the “▯▯ - ▯▯ - ▯▯ (▯▯)” displayed is above 20, press the ■ (CD) button.
    If below, press the ▶II (CD) button and start from step 2 again.
13. Press the ⏏ button and remove the continuously recorded disc.

**Note 1 :** The following figure shows the relation between the C1 error and focus bias value. Look for points a and b in the following figure by the adjustment avove. The focus position (point c) is automatically calculated from points a and b.

**Note 2 :** As the C1 error rate changes, use the average value in the adjustment.



## 6-9. ERROR RATE CHECK

### 6-9-1. CD Error Rate Check

**Checking Procedure :**

1. Load a check disc (MD) TDYS-1.
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. “C1 = □□□□ AD = □□” is displayed.
5. Check that the C1 error rate is below 20.
6. Press the ►II (CD) button to stop playback. Then press the ⏏ (MD) button, and remove the check disc (MD).

### 6-9-2. MO Error Rate Checking

**Checking Procedure :**

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. “C1 = □□□□ AD = □□” is displayed.
5. Check that the C1 error rate is below 50 and ADER is 00.
6. Press the ►II (CD) button to stop playback. Then press the ⏏ (MD) button, and remove the disc.

## 6-10. FOCUS BIAS CHECK

Change the focus bias value and check the focus tolerance amount.

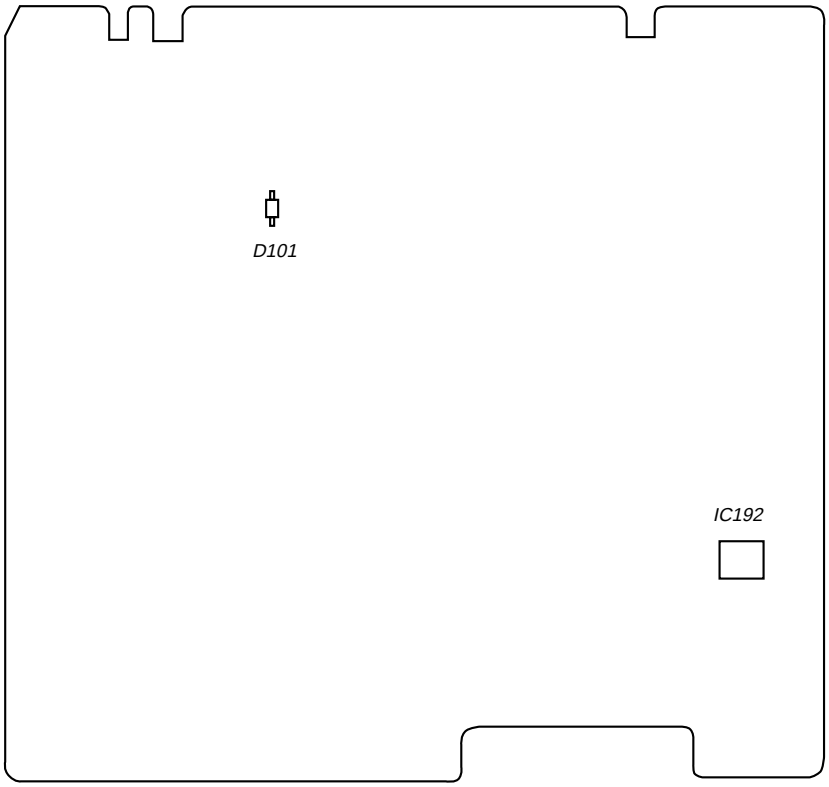
**Checking Procedure :**

1. Load a continuously recorded disc (Refer to 6-4. Creating the Continuously Recorded Disc”).
2. Rotate the VOLUME knob to display “CPLAY MODE”.
3. Press the ■ (CD) button to display “CPLAY MID”.
4. When “C1 = □□□□ AD = □□” is displayed, press the ►II (CD) button.
5. Rotate the VOLUME knob to display “FBIAS CHECK”.
6. Press the ■ (CD) button to display “ □□□□/□□ c = □□”.
   The first four digits indicate the C1 error, the two digits after the “/” indicate ADER and the two digits after “c =” indicate the focus bias value.
   Check that the C1 error is below 50 and ADER is 00.
7. Press the ■ (CD) button to change the display to “ □□□□/□□ b = □□”.
   Check that the C1 error does not drop below 220 and ADER does not remain above 00.
8. Press the ■ (CD) button to change the display to “ □□□□/□□ a = □□”.
   Check that the C1 error does not drop below 220 and ADER does not remain above 00.
9. Press the ►II (CD) button, press the ⏏ (MD) button next, and remove the continuously recorded disc.

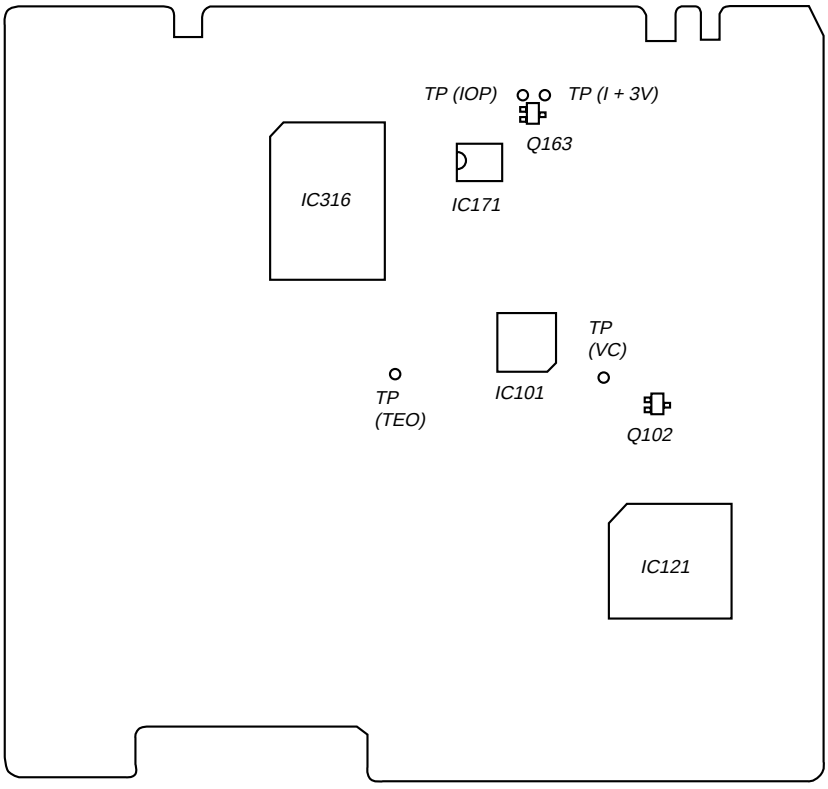
**Note 1 :** If the C1 error is above 220 or ADER is above 00 only for point a (step 8 above) and point b (step 7 above), the focus bias may not adjusted properly. In this case, adjust again.

## 6-11. ADJUSTING POINTS AND CONNECTING POINTS

**[BD (MD) BOARD] (SIDE A)**




**[BD (MD) BOARD] (SIDE B)**



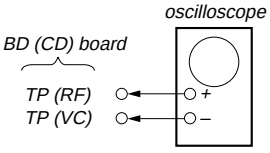
## CD SECTION

**Note:**

1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with lens cleaning liquid when the signal level is low than specified value with the following checks.
5. Adjust the focus bias adjustment when optical block is replaced.

### Focus Bias Adjustment

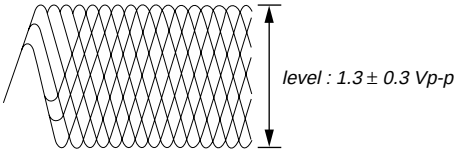
Perform this adjustment when the optical pick-up has been replaced or repaired.



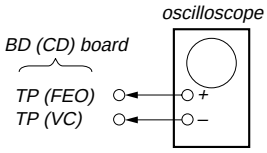

**Procedure:**

1. Connect oscilloscope to test point TP (RF).
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Adjust RV101 so that the waveform is clear.
   (Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.)
5. After adjustment, check the RF signal level.

• RF signal
VOLT/DIV: 200 mV
TIME/DIV: 500 nS



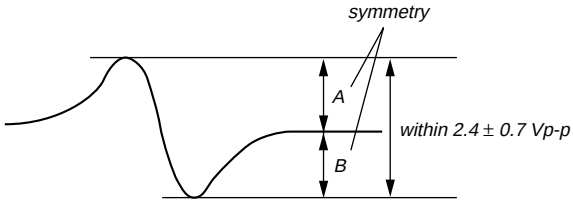

### S Curve Check




**Procedure :**

1. Connect oscilloscope to test point TP (FEO).
2. Connect between test point TP (FOK) and Ground by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4 ± 0.7 Vp-p.

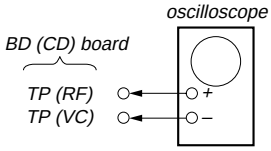
S-curve waveform




6. After check, remove the lead wire connected in step 2.

**Note:** • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

### RF Level Check

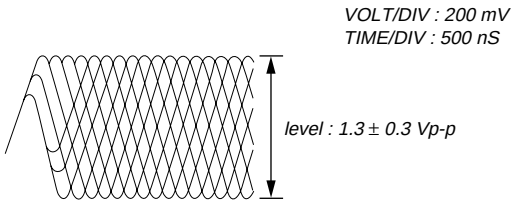



**Procedure :**

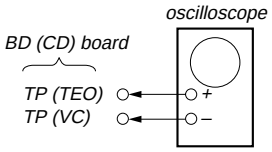
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

**Note:** Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform



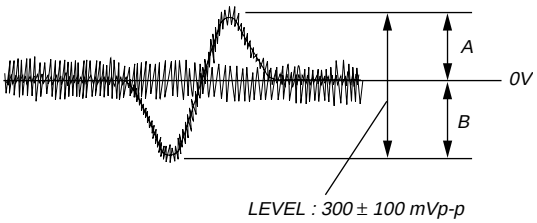
### E-F Balance (1 Track Jump) Check (Without remote commander)




**Procedure :**

1. Connect oscilloscpe to test point TP (TEO) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Press the "❚❚ (Pause)" button. (Becomes the 1 track jump mode)
5. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.

*1 track jump waveform*




Specified level: • $\frac{A - B}{2 (A + B)}$ x 100 = less than ± 7%

• A + B = 300 ± 100 mVp-p

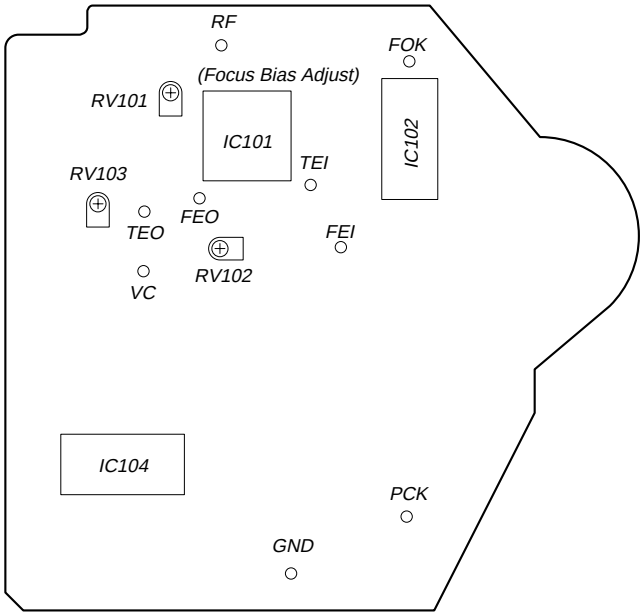
6. Remove the lead wire connected in step 1.

### Focus/Tracking Gain Adjustment (RV102, RV103)

This gain has a margin, so even if it is slightly off.
There is no problem.
Therfore, do not perform this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

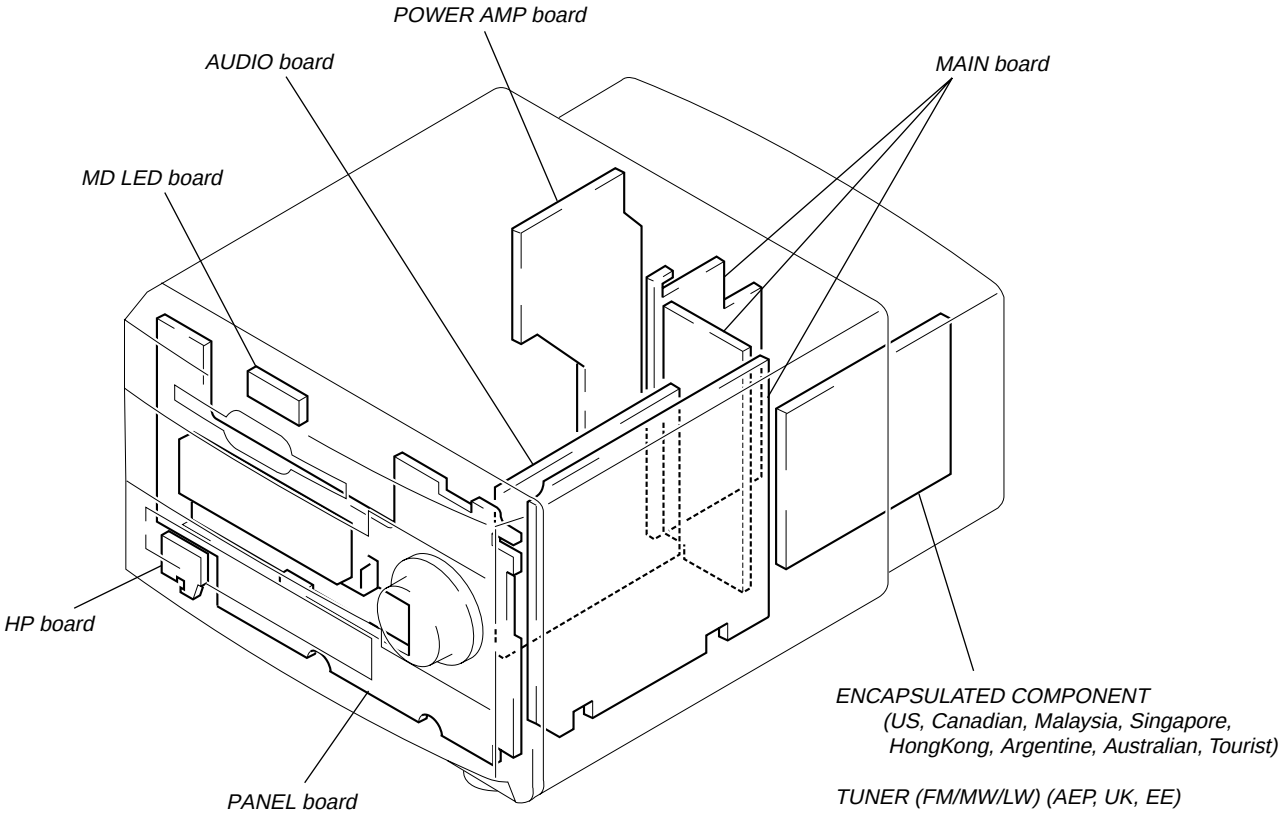
**Adjustment Location:**

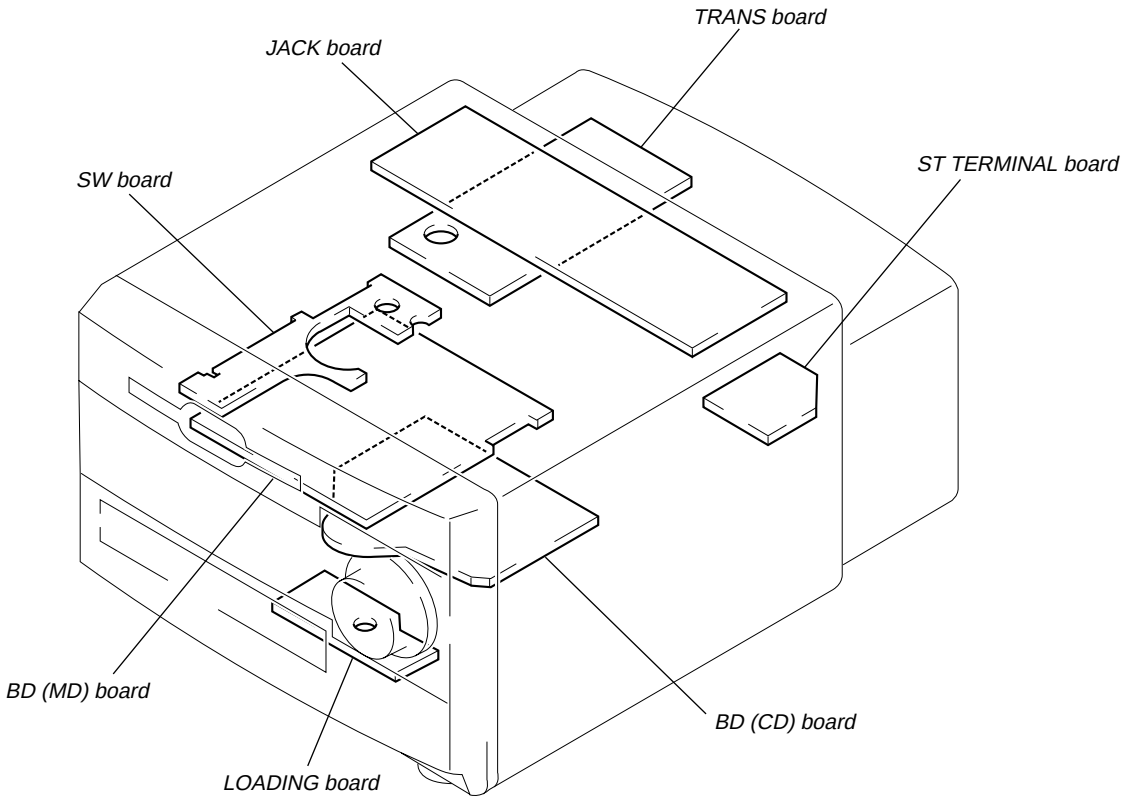
**[BD (CD) BOARD]** — Component Side —



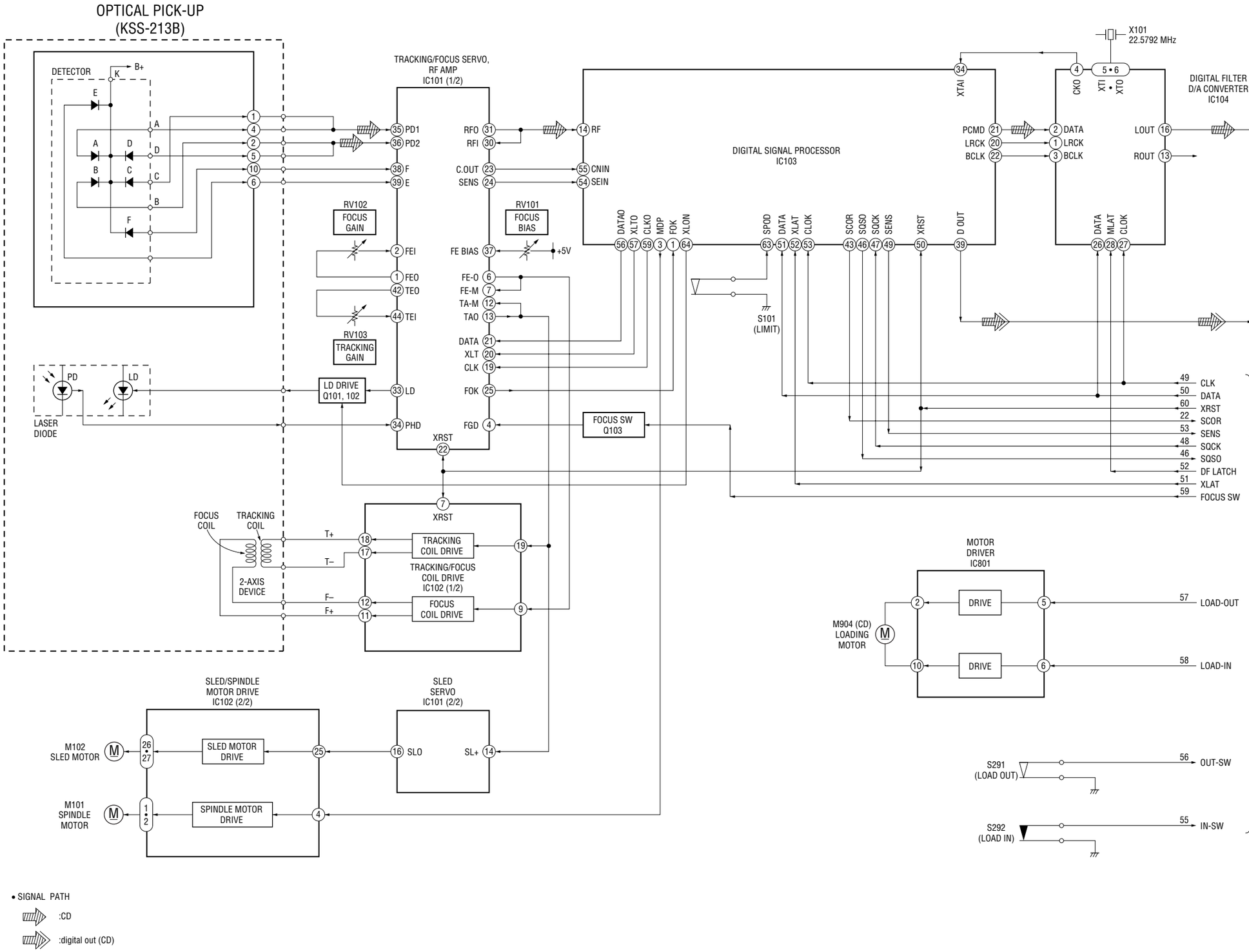
# SECTION 7
# DIAGRAMS

## 7-1. CIRCUIT BOARDS LOCATION



## 7-2. BLOCK DIAGRAMS
## – CD SECTION –



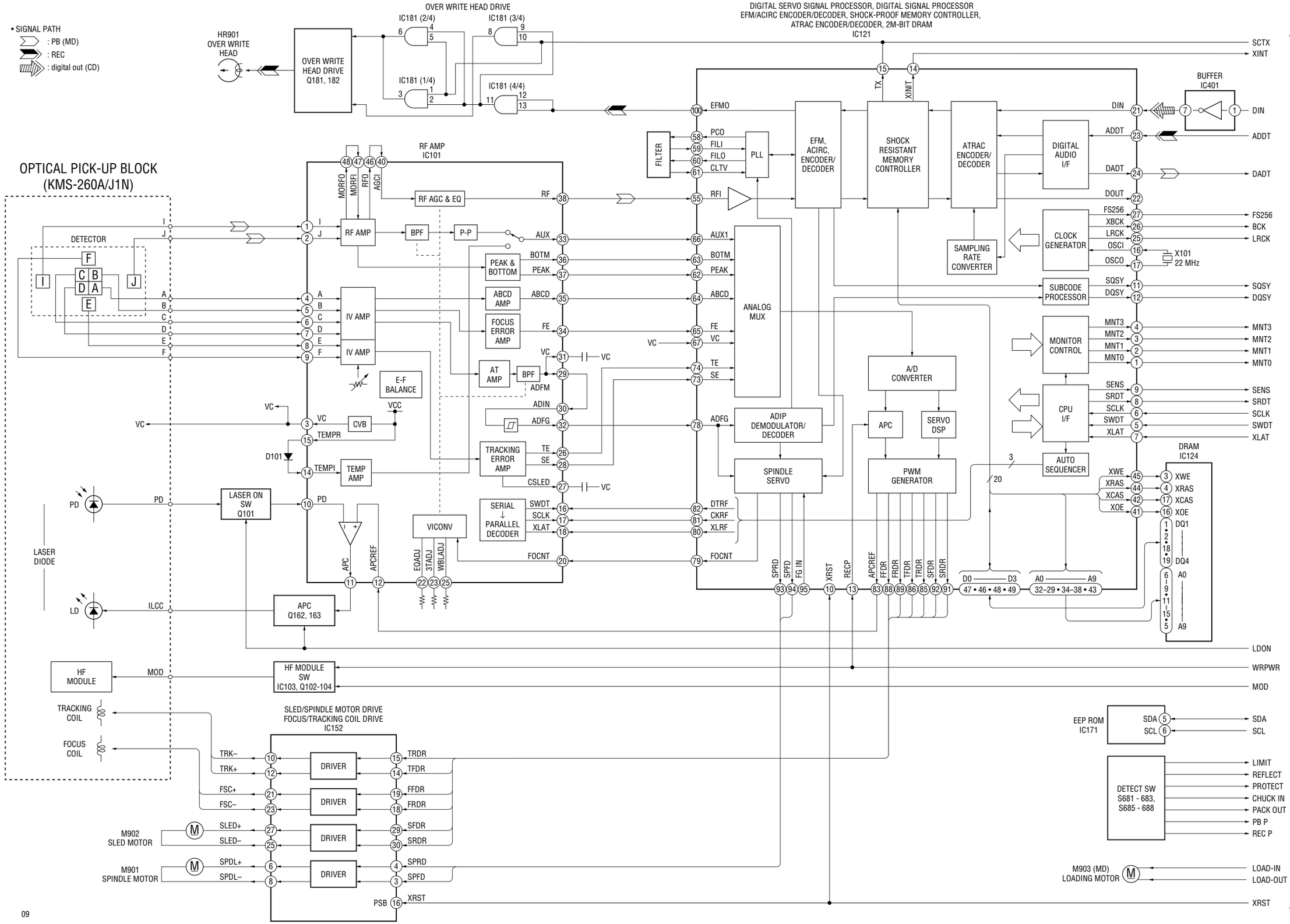

09

• SIGNAL PATH

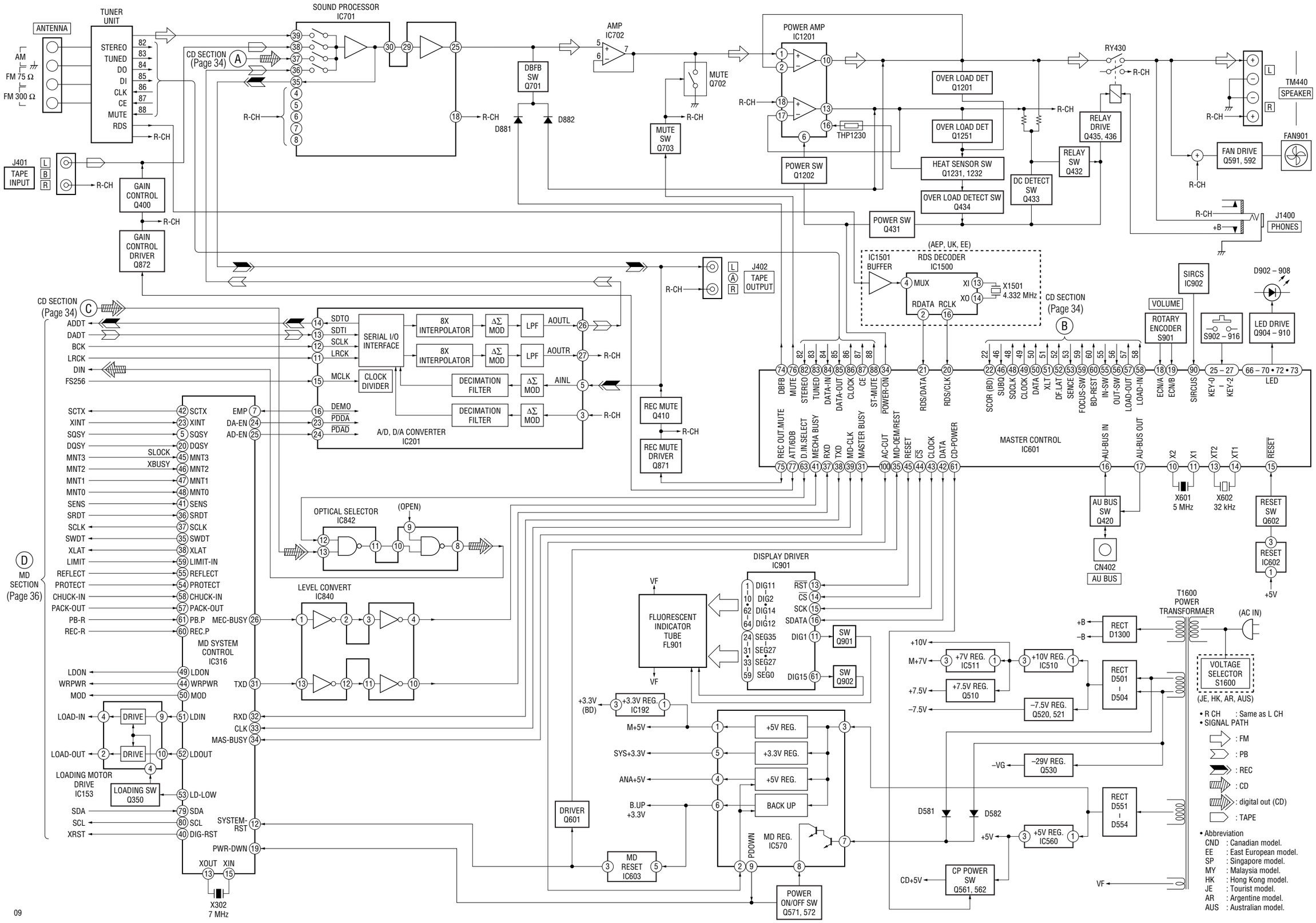
:CD

:digital out (CD)

## – MD SECTION –


• SIGNAL PATH
: PB (MD)
: REC
: digital out (CD)
OVER WRITE HEAD DRIVE
IC181 (2/4)
IC181 (3/4)
IC181 (1/4)
IC181 (4/4)
HR901
OVER WRITE HEAD
OVER WRITE HEAD DRIVE Q181, 182
DIGITAL SERVO SIGNAL PROCESSOR, DIGITAL SIGNAL PROCESSOR
EFM/ACIRC ENCODER/DECODER, SHOCK-PROOF MEMORY CONTROLLER,
ATRAC ENCODER/DECODER, 2M-BIT DRAM
IC121
BUFFER IC401
OPTICAL PICK-UP BLOCK (KMS-260A/J1N)
RF AMP IC101
DETECTOR
RF AMP
RF AGC & EQ
BPF
P-P
PEAK & BOTTOM
ABCD AMP
FOCUS ERROR AMP
AT AMP
IV AMP
E-F BALANCE
CVB
TRACKING ERROR AMP
SERIAL ↓ PARALLEL DECODER
VICONV
TEMP AMP
LASER ON SW Q101
APC Q162, 163
LASER DIODE
FILTER
PLL
EFM, ACIRC, ENCODER/ DECODER
SHOCK RESISTANT MEMORY CONTROLLER
ATRAC ENCODER/ DECODER
ANALOG MUX
ADIP DEMODULATOR/ DECODER
SPINDLE SERVO
A/D CONVERTER
APC
SERVO DSP
PWM GENERATOR
DIGITAL AUDIO I/F
SAMPLING RATE CONVERTER
CLOCK GENERATOR
SUBCODE PROCESSOR
MONITOR CONTROL
CPU I/F
AUTO SEQUENCER
DRAM IC124
X101 22 MHz
HF MODULE
HF MODULE SW IC103, Q102-104
SLED/SPINDLE MOTOR DRIVE
FOCUS/TRACKING COIL DRIVE
IC152
DRIVER
M902 SLED MOTOR
M901 SPINDLE MOTOR
TRACKING COIL
FOCUS COIL
EEP ROM IC171
DETECT SW S681 - 683, S685 - 688
M903 (MD) LOADING MOTOR
D MAIN SECTION (Page 37)
09

## – MAIN SECTION –




09

**THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.**
**(In addition to this, the necessary note is printed in each block.)**

### For schematic diagrams.

**Note:**

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.
- : Switch with sliding contact indicated by hatched lines shows shorting type.
- : panel designation.

| **Note:** | **Note:** |
|---|---|
| The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié. |

- B+ : B+ Line.
- B− : B– Line.
- : adjustment for repair.

Signal path.

- : FM
- : PB (MD)
- : PB (TAPE)
- : REC
- : CD
- : digital out

- Abbreviation

| | |
|---|---|
| CND | : Canadian model. |
| EE | : East European model. |
| SP | : Singapore model. |
| MY | : Malaysia model. |
| JE | : Tourist model. |
| HK | : Hong Kong model. |
| AR | : Argentine model. |
| AUS | : Australian model. |

### For printed wiring boards.

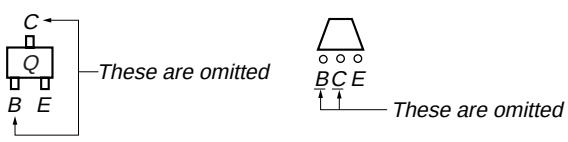
**Note:**

- ○——— : parts extracted from the component side
- ○ : Through hole.
- △ : internal component.
- ▒▒ : Pattern from the side which enables seeing.

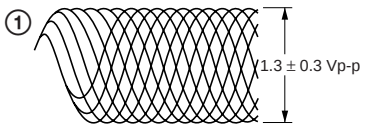
(The other layers' patterns are not indicated.)

| Caution: | |
|---|---|
| Pattern face side: (Side B) | Parts on the pattern face side seen from the pattern face are indicated. |
| Parts face side: (Side A) | Parts on the parts face side seen from the parts face are indicated. |

### • Indication of transistor



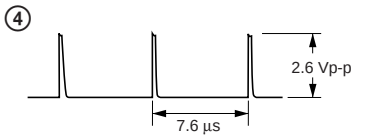

## WAVEFORMS – CD SECTION –



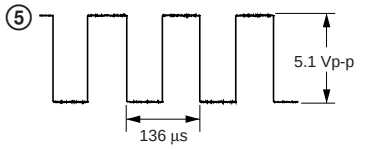

IC101 ㉛ (RFO) (PLAY Mode)
500 mV/DIV, 500 ns/DIV

IC101 ㊹ (TEI) (PLAY Mode)
50 mV/DIV, 1 µs/DIV

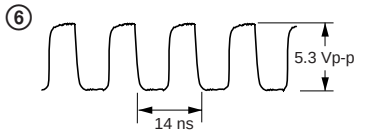
IC101 ② (FEI) (PLAY Mode)
50 mV/DIV, 1 µs/DIV



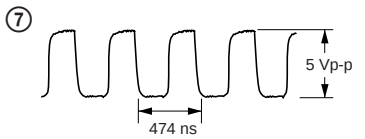

IC103 ③ (MDP) (PALY Mode)



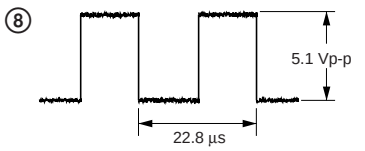

IC103 ㉘ (RFCK)



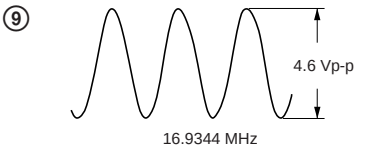

IC103 ㉕ (XPCK)




IC103 ㉒ (BCLK)

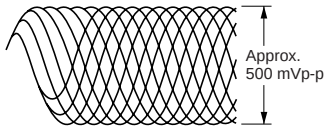



IC103 ⑳ (LRCK)




IC104 ⑥ (XTO)

## – MD SECTION –

① 

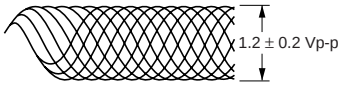
IC501 ①, ② (I.J) (PLAY Mode)

②

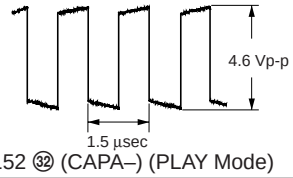
IC101 ④ (A) (PLAY Mode)

③

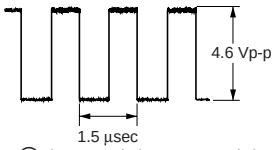
IC101 ⑧, ⑨ (E, F) (PLAY Mode)

④ 

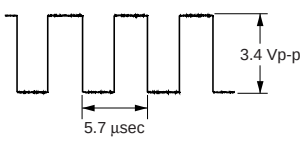
IC101 ㊳ (RF) (PLAY Mode)

⑤ 

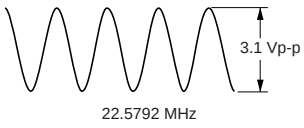
IC152 ㉜ (CAPA–) (PLAY Mode)

⑥ 

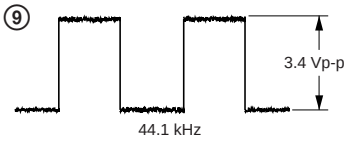
IC152 ㉜ (CAPA+) (PLAY Mode)

⑦ 

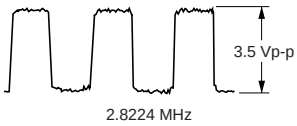
IC121 ㊿ (FS4)

⑧ 

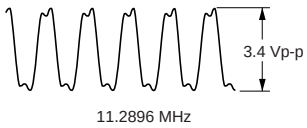
IC121 ⑰ (OSCI)

⑨ 

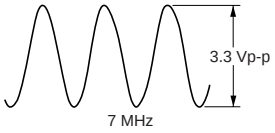
IC121 ㉕ (LRCK)

⑩ 

IC121 ㉖ (XBCK)

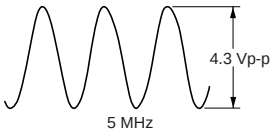
⑪ 

IC121 ㉗ (FS256)

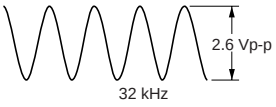
⑫ 

IC316 ⑬ (XOUT)

## – MAIN SECTION –

① 

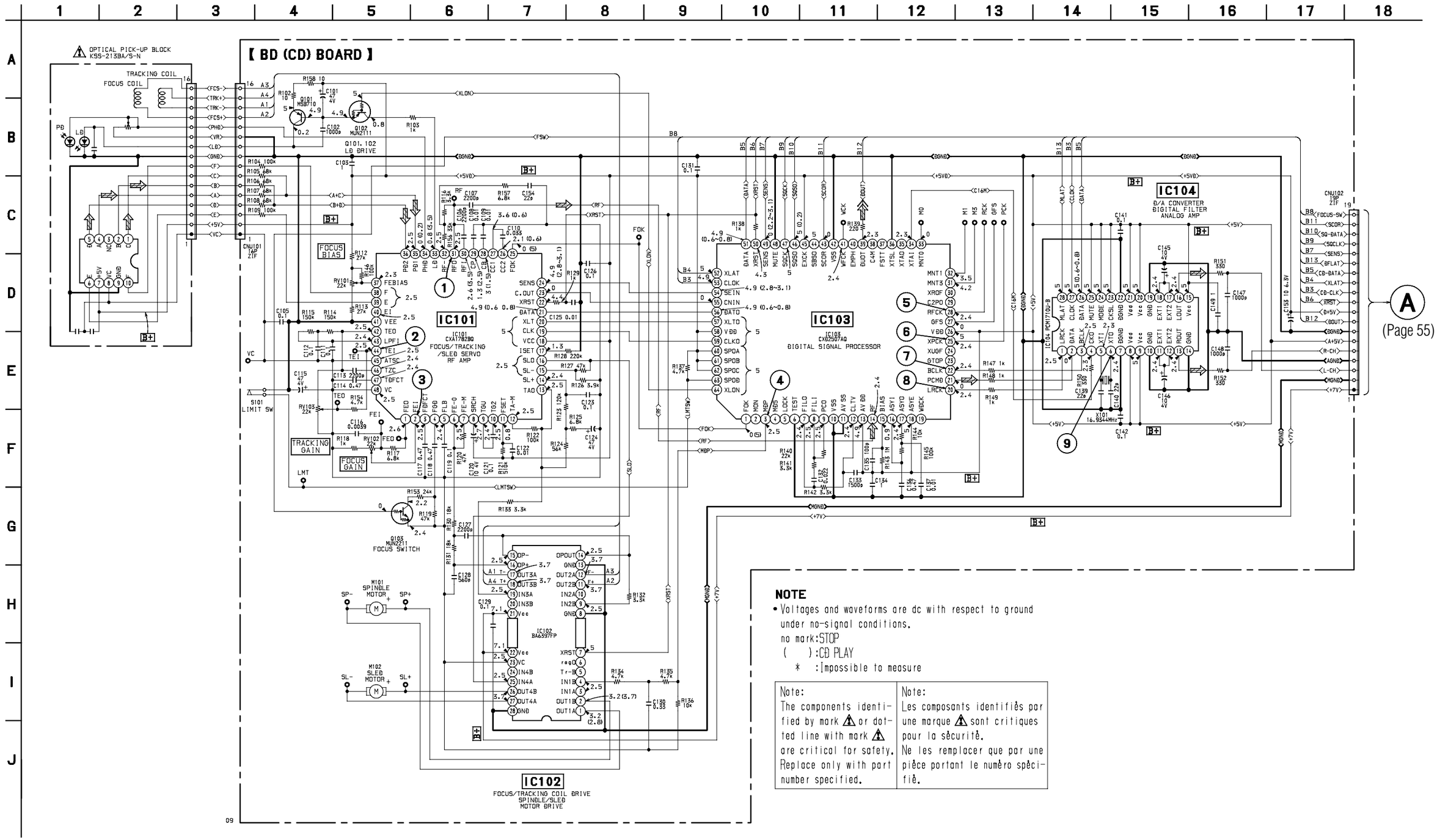
IC601 ⑪ (XI)

② 

IC601 ⑭ (XI)

## 7-3. SCHEMATIC DIAGRAM – CD SECTION –

- See page 39 for Waveforms.
- See page 81 for IC Block Diagrams.



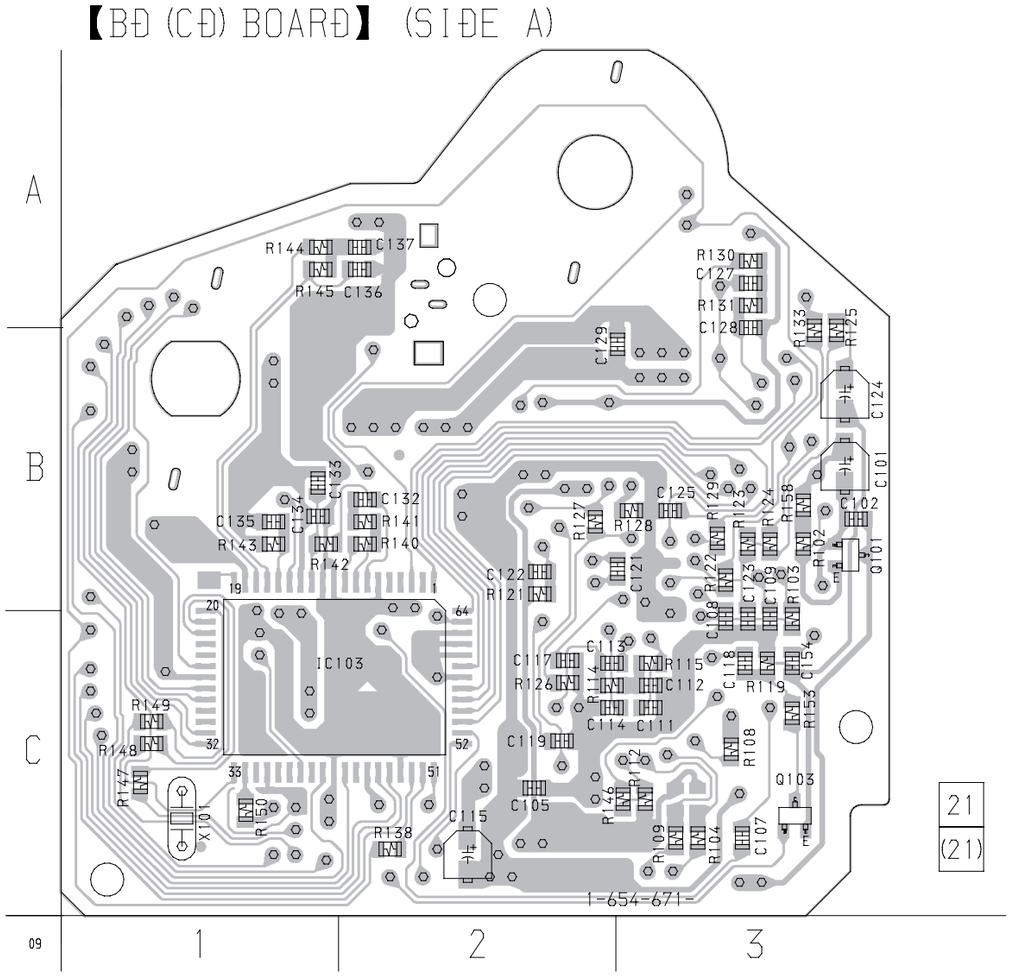

**NOTE**

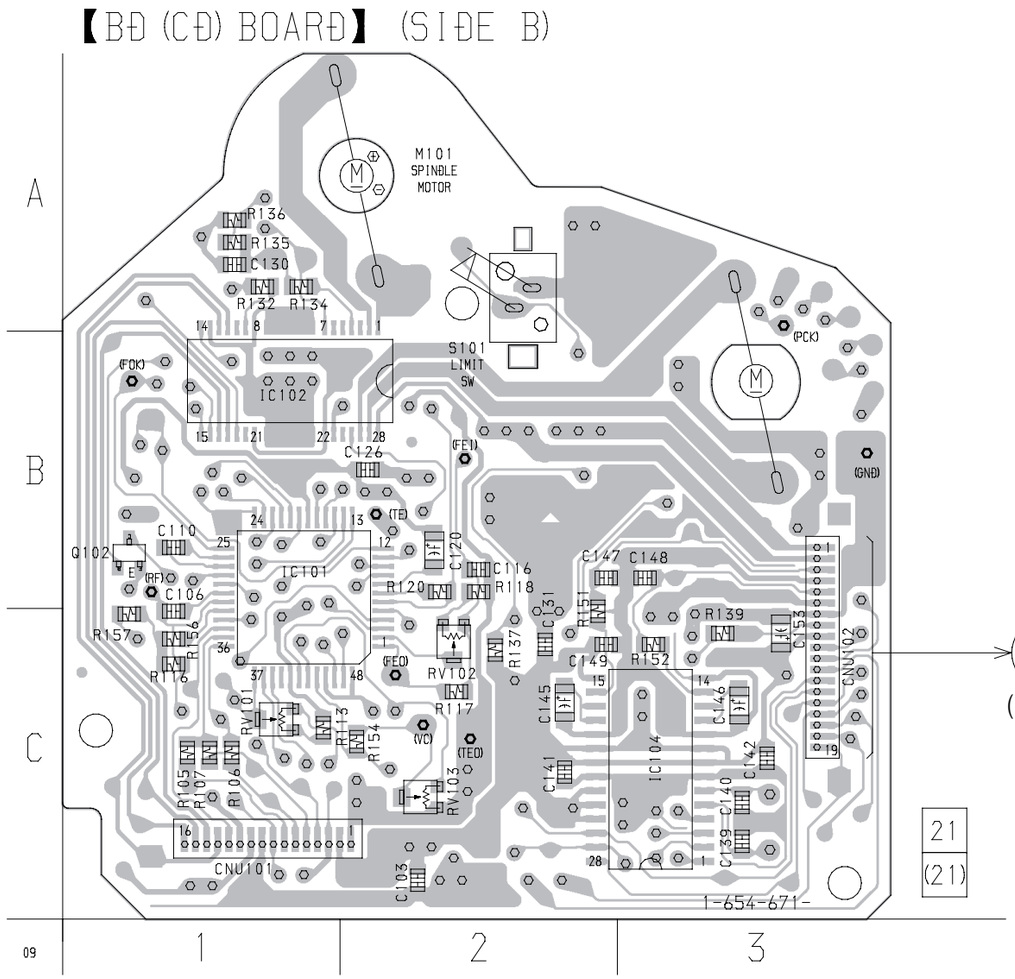
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP
  ( ):CD PLAY
  * :Impossible to measure

| | |
|---|---|
| Note:<br>The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.<br>Replace only with part number specified. | Note:<br>Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.<br>Ne les remplacer que par une pièce portant le numéro spécifié. |

**7-4. PRINTED WIRING BOARD – CD SECTION –**

**• See page 31 for Circuit Boards Location.**




A (Page 59)

• **Semiconductor Location**

| Ref. No. | Location |
|---|---|
| IC103 | C-1 |
| Q101 | B-3 |
| Q103 | C-3 |

• **Semiconductor Location**

| Ref. No. | Location |
|---|---|
| IC101 | B-1 |
| IC102 | B-1 |
| IC104 | C-3 |
| Q102 | B-1 |

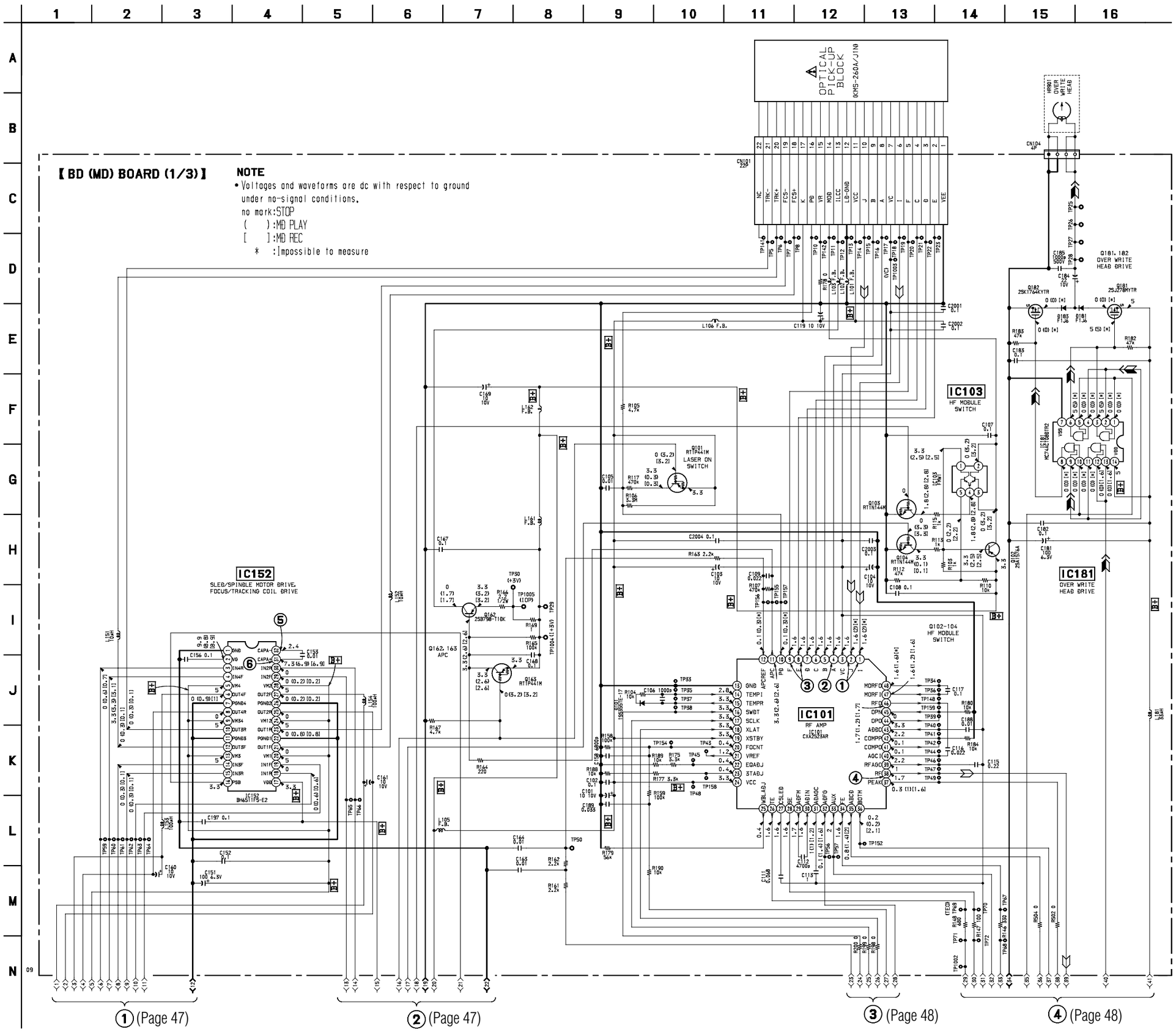
## 7-5. SCHEMATIC DIAGRAM – MD (1/3) SECTION –


- See page 40 for Waveforms.
- See page 51 for Printed Wiring Board.
- See page 84 for IC Block Diagrams.
- See page 88 for IC Pin Functions.


【BD (MD) BOARD (1/3)】

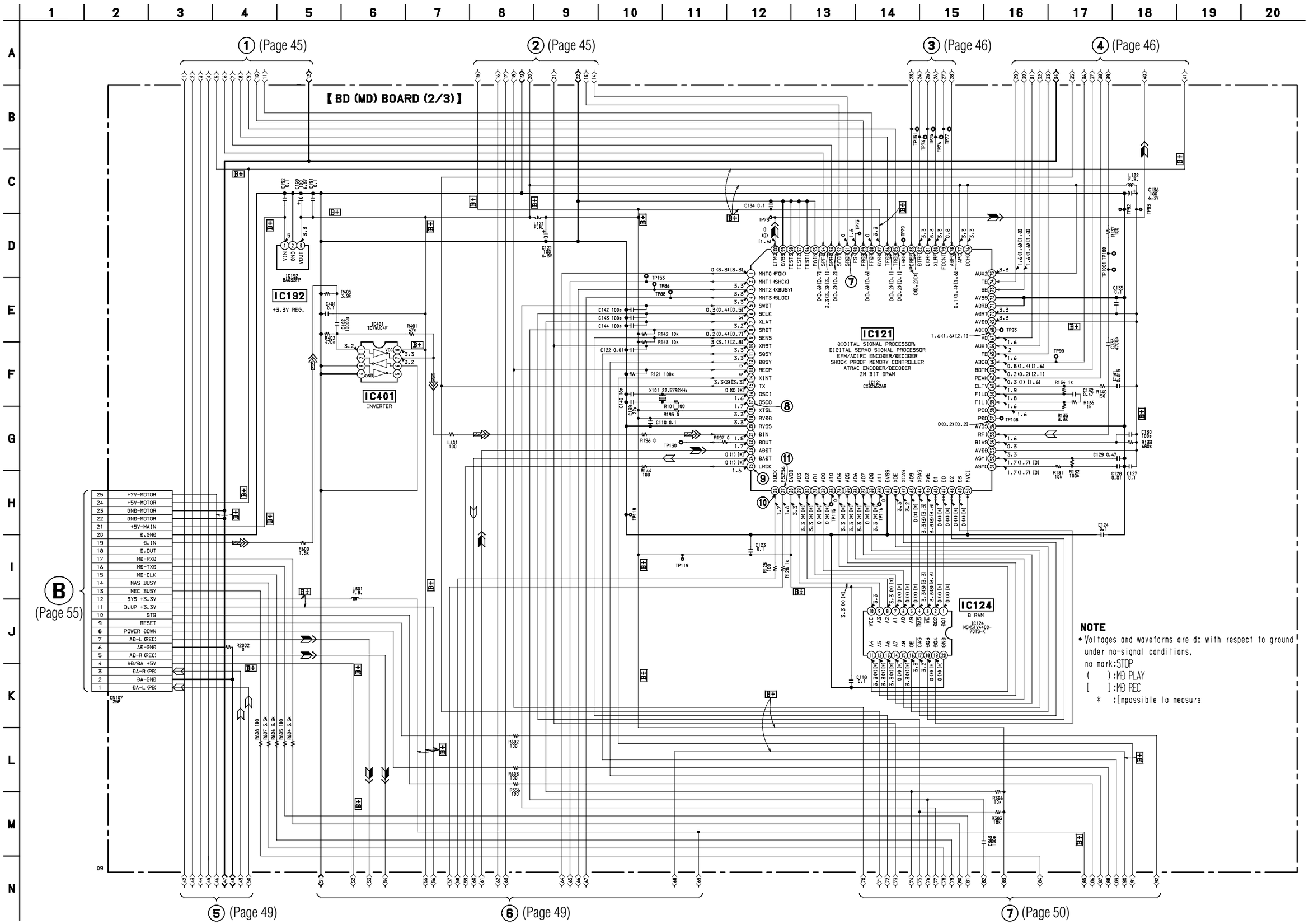
**NOTE**

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP
  ( ):MD PLAY
  [ ]:MD REC
  * :Impossible to measure


OPTICAL PICK-UP BLOCK (KMS-260A/J1N)
IC103 HF MODULE SWITCH
IC101 RF AMP CXA2523AR
IC152 SLED/SPINDLE MOTOR DRIVE, FOCUS/TRACKING COIL DRIVE
IC181 OVER WRITE HEAD DRIVE
Q102-104 HF MODULE SWITCH
Q101 RTTP441M LASER ON SWITCH
Q162, 163 APC
Q181, 182 OVER WRITE HEAD DRIVE
① (Page 47)
② (Page 47)
③ (Page 48)
④ (Page 48)

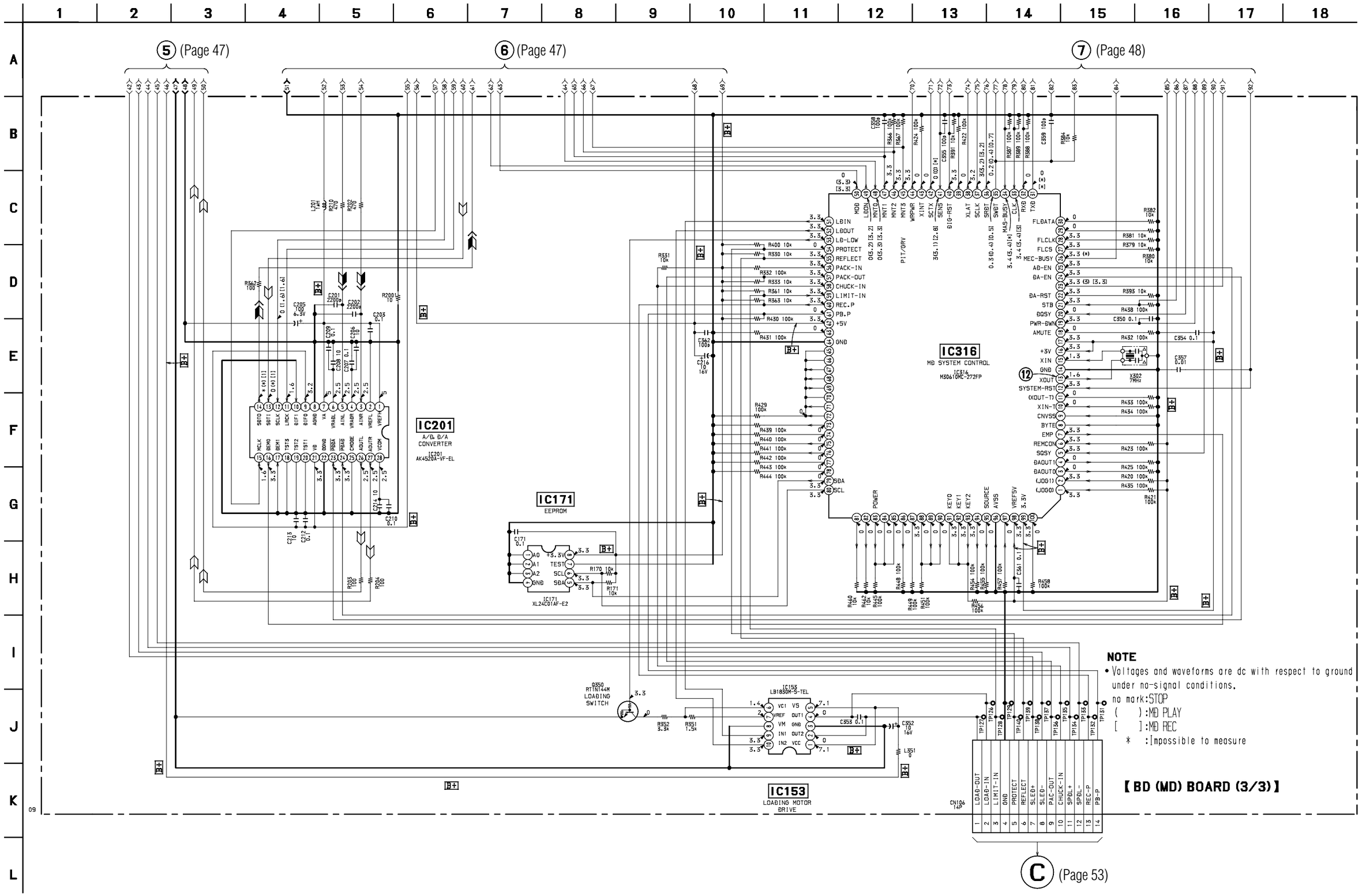
## 7-6. SCHEMATIC DIAGRAM – MD (2/3) SECTION –


- See page 40 for Waveforms.
- See page 51 for Printed Wiring Board.
- See page 85 for IC Block Diagrams.
- See page 89 for IC Pin Functions.

**7-7. SCHEMATIC DIAGRAM – MD (3/3) SECTION –**

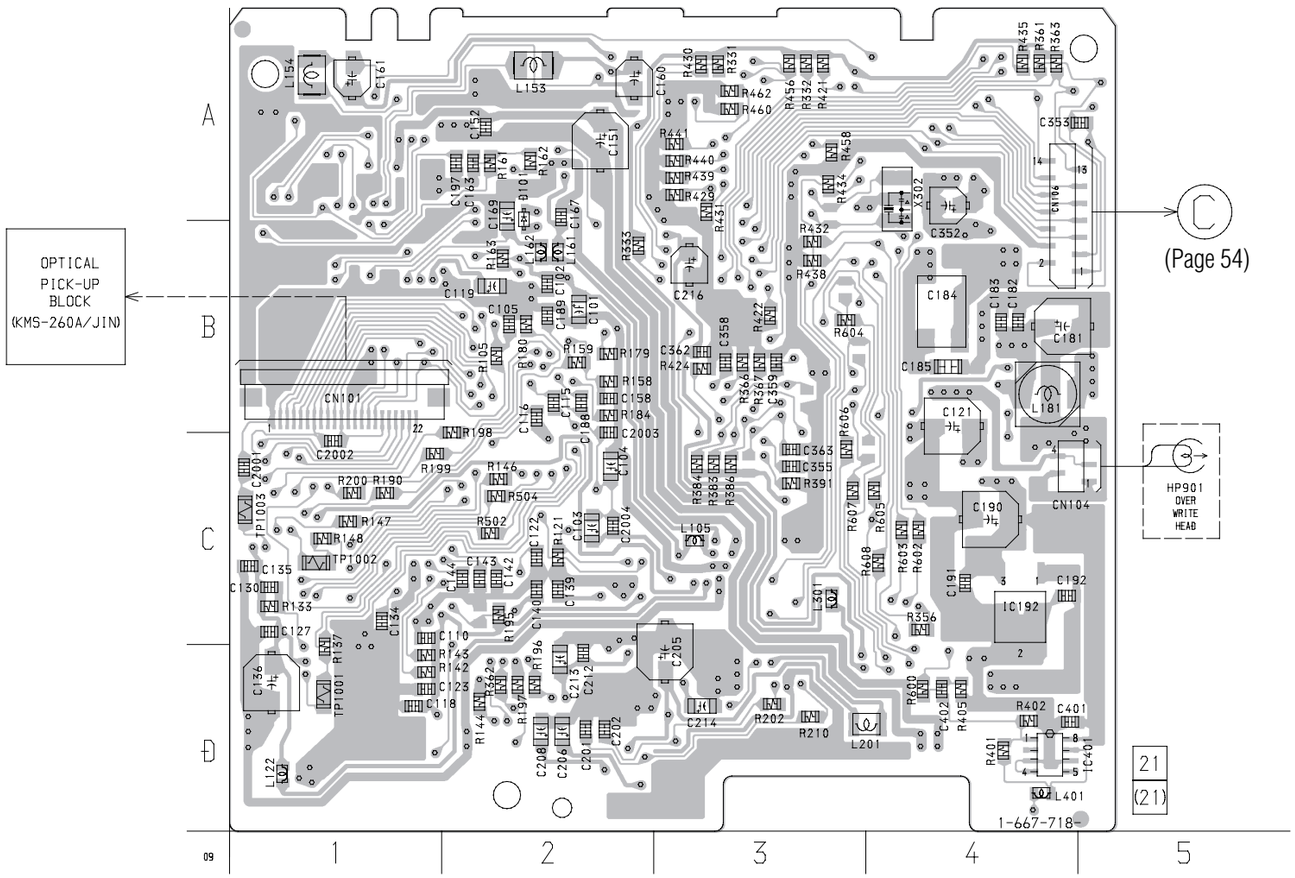
- **See page 40 for Waveforms.**
- **See page 83 for IC Block Diagrams.**
- **See page 92 for IC Pin Functions.**



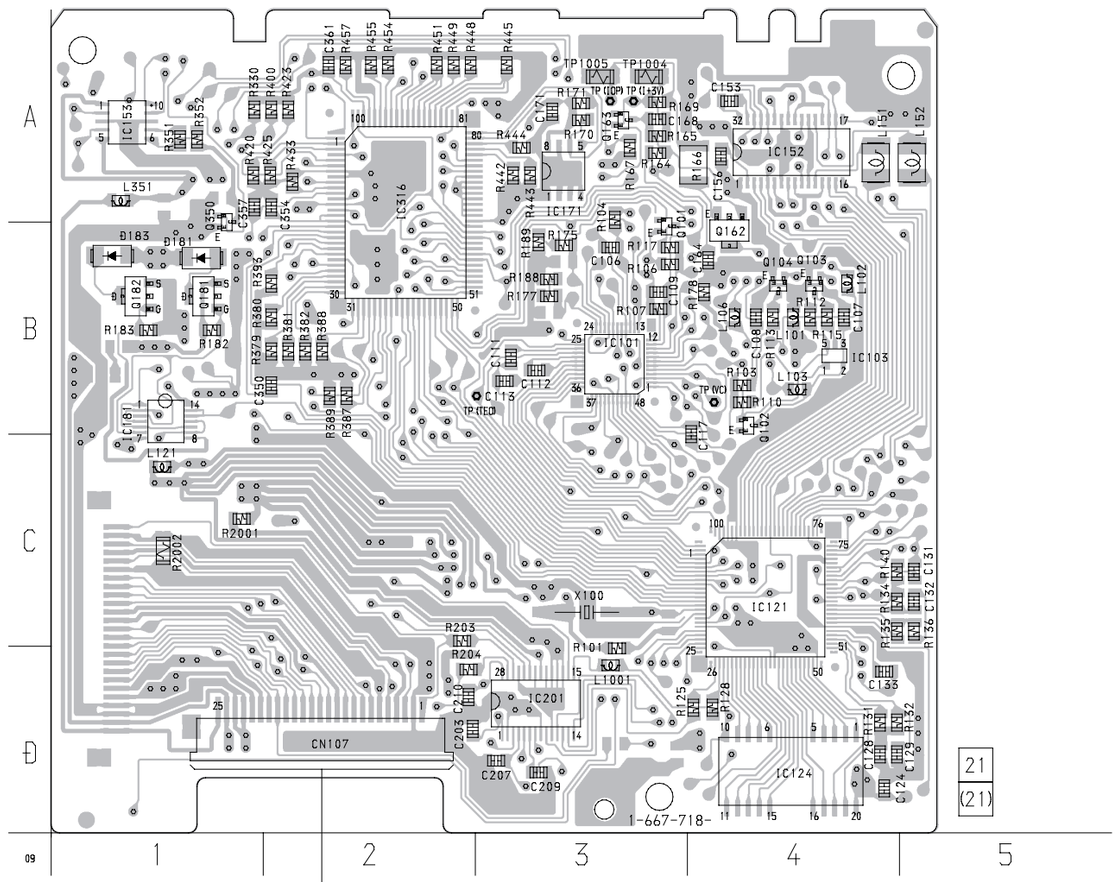
**7-8. PRINTED WIRING BOARD – MD SECTION –**

**• See page 31 for Circuit Boards Location.**

【BD (MD) BOARD】 (SIDE A)




【BD (MD) BOARD】 (SIDE B)



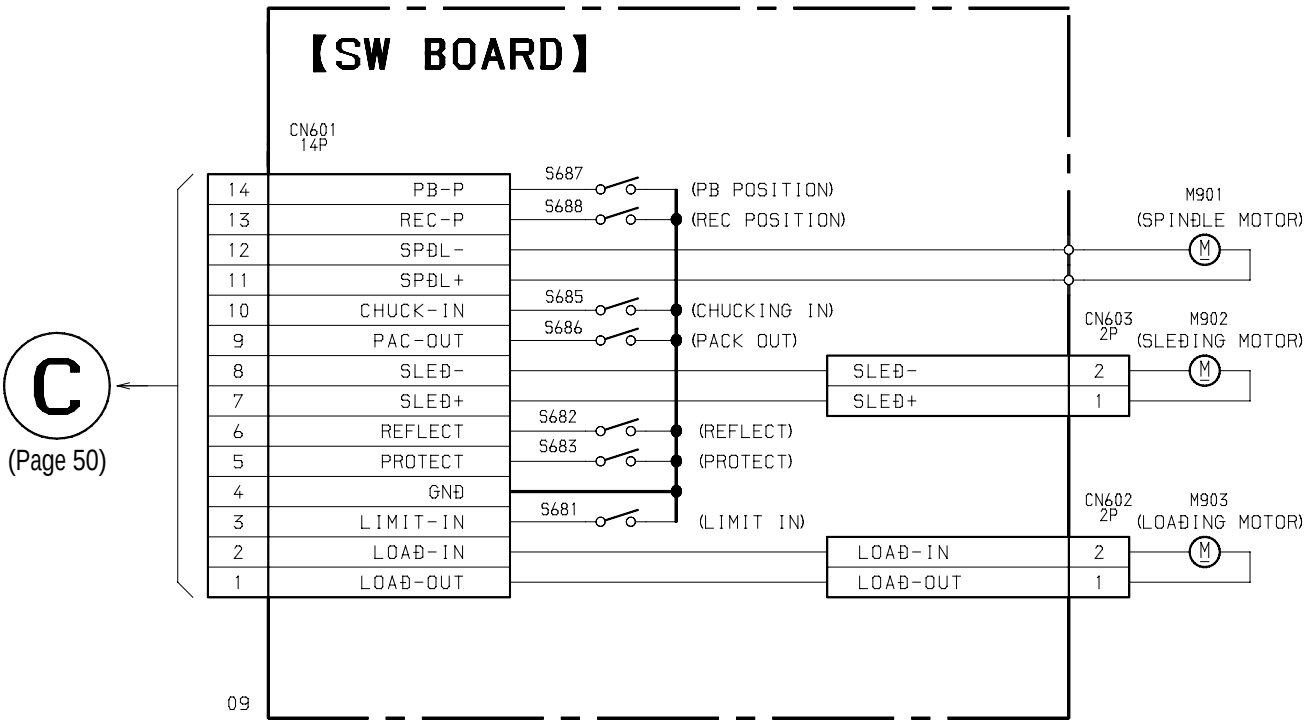

**• Semiconductor Location**

| Ref. No. | Location |
|---|---|
| D101 | A-2 |
| IC192 | C-4 |
| IC401 | D-4 |

**• Semiconductor Location**

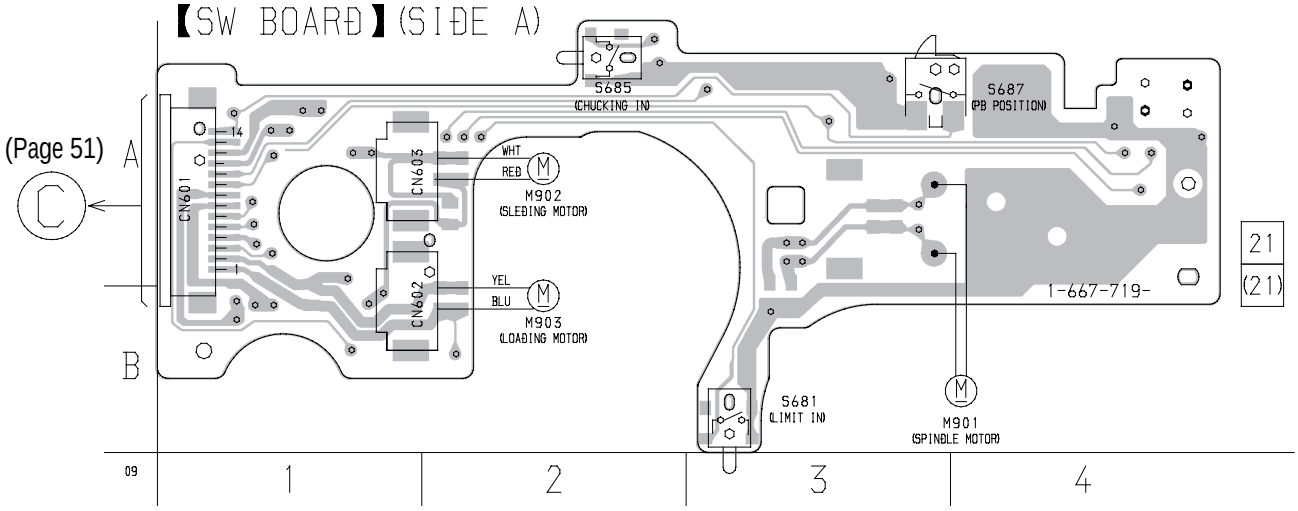
| Ref. No. | Location | Ref. No. | Location |
|---|---|---|---|
| D181 | B-1 | IC316 | A-2 |
| D183 | B-1 | Q101 | B-3 |
| IC101 | B-3 | Q102 | B-4 |
| IC103 | B-4 | Q103 | B-4 |
| IC121 | C-4 | Q104 | B-4 |
| IC124 | D-4 | Q162 | B-4 |
| IC152 | A-4 | Q163 | A-3 |
| IC153 | A-1 | Q181 | B-1 |
| IC171 | A-3 | Q182 | B-1 |
| IC181 | B-1 | Q350 | A-1 |
| IC201 | D-3 | | |

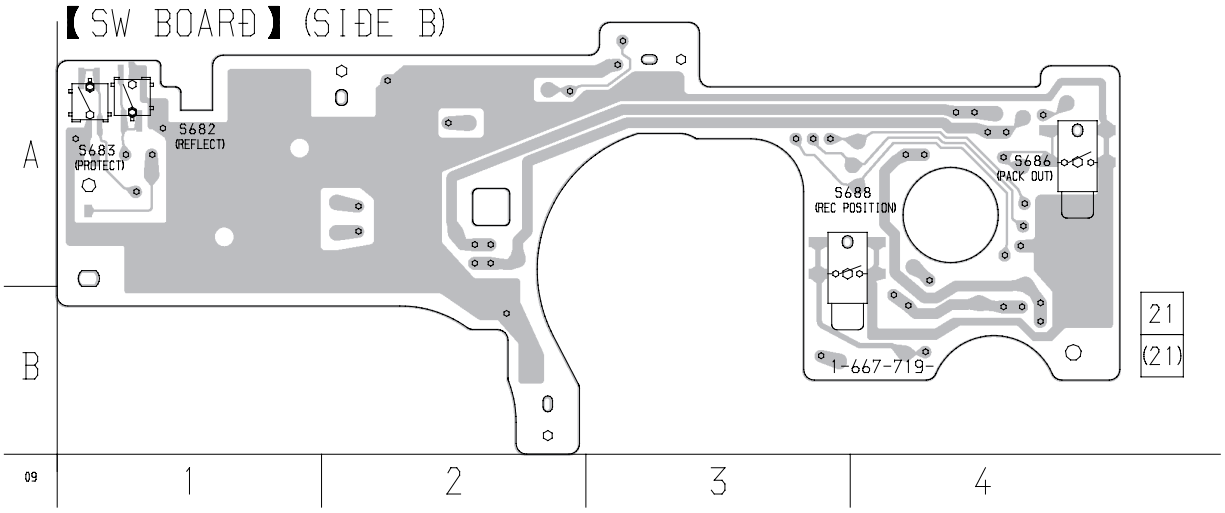
## 7-9. SCHEMATIC DIAGRAM – MD SWITCH SECTION –



### 7-10. PRINTED WIRING BOARD – MD SWITCH SECTION –

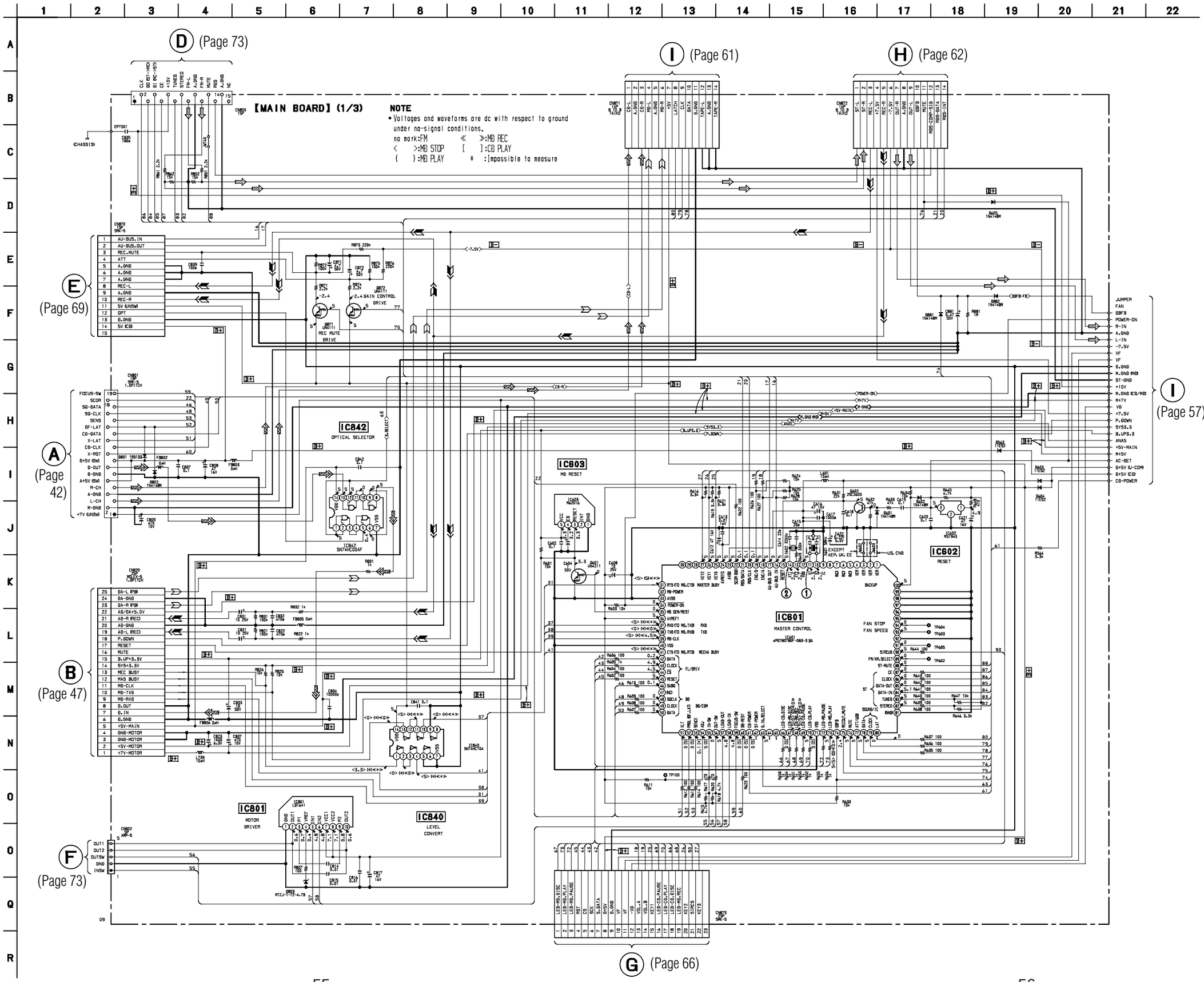
• See page 31 for Circuit Boards Location.



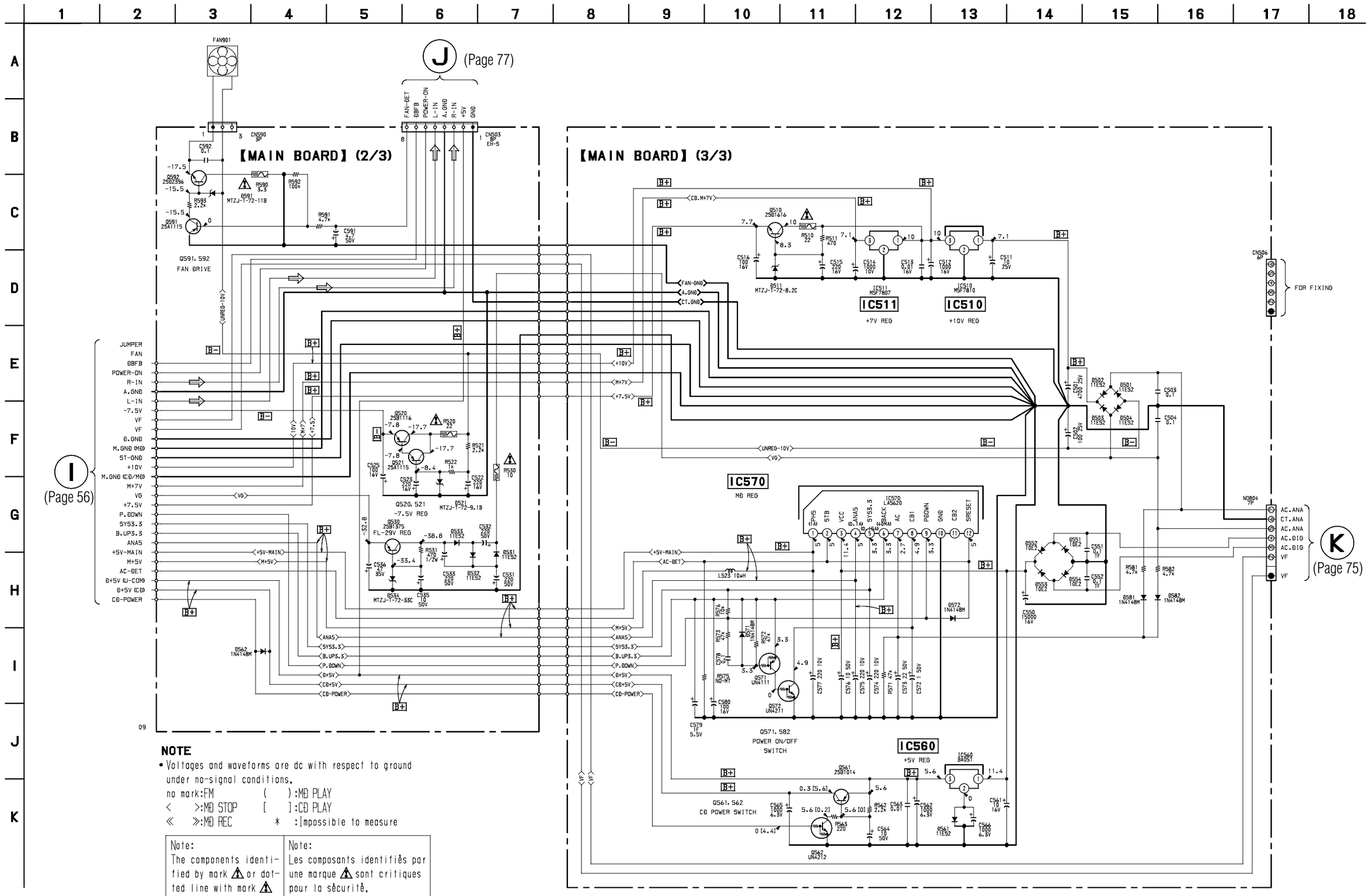
## 7-11. SCHEMATIC DIAGRAM – MAIN (1/3) SECTION –


- See page 40 for Waveforms.
- See page 59 for Printed Wiring Board.
- See page 86 for IC Block Diagrams.
- See page 94 for IC Pin Functions.

## 7-12. SCHEMATIC DIAGRAM – MAIN (2/3), (3/3) SECTION –

• See page 86 for IC Block Diagrams.



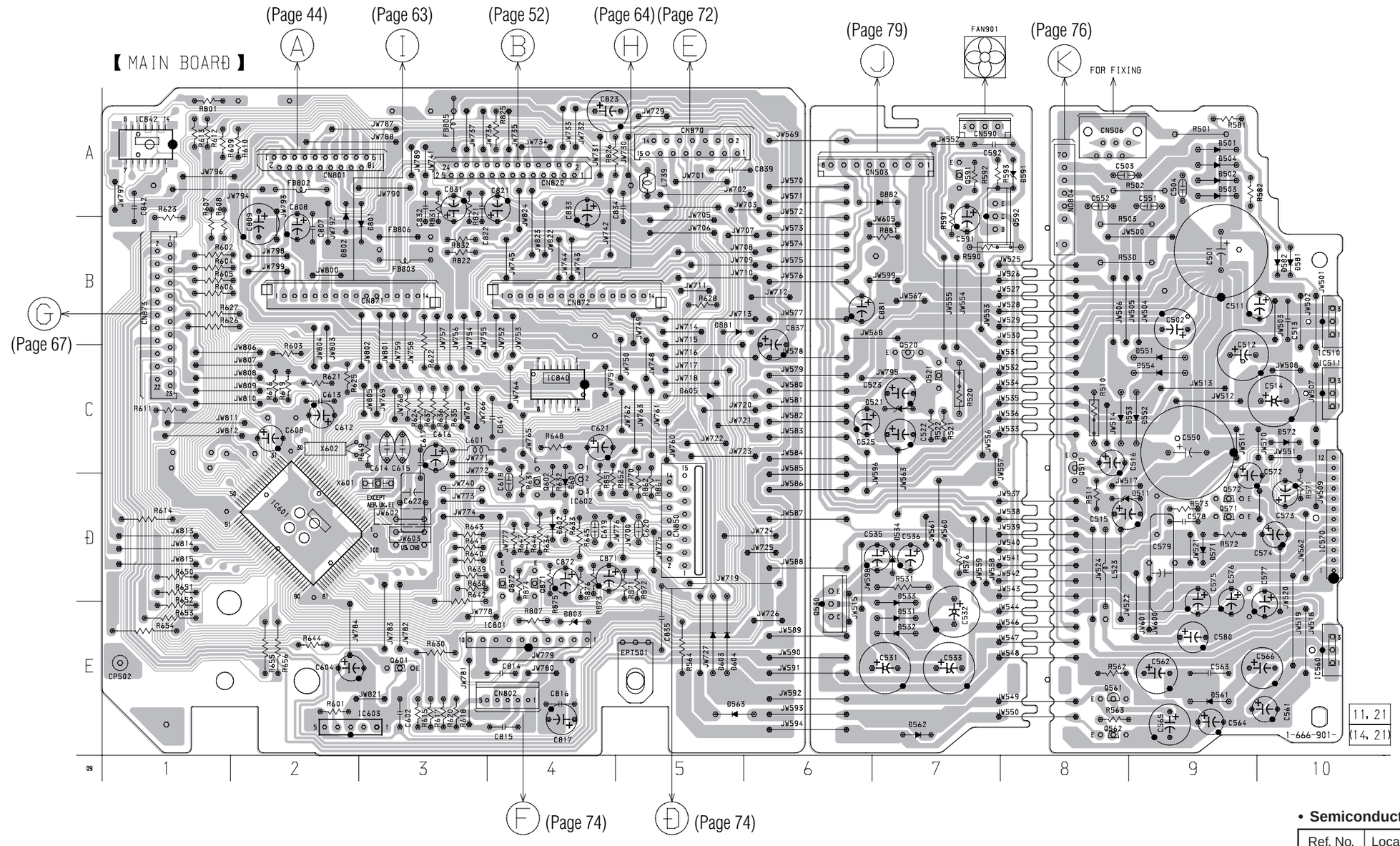

**NOTE**

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:FM ( ):MD PLAY
  < >:MD STOP [ ]:CD PLAY
  ≪ ≫:MD REC * :Impossible to measure

| | |
|---|---|
| Note:<br>The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.<br>Replace only with part number specified. | Note:<br>Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.<br>Ne les remplacer que par une pièce portant le numéro spécifié. |

### 7-13. PRINTED WIRING BOARD – MAIN SECTION –

• See page 31 for Circuit Boards Location.

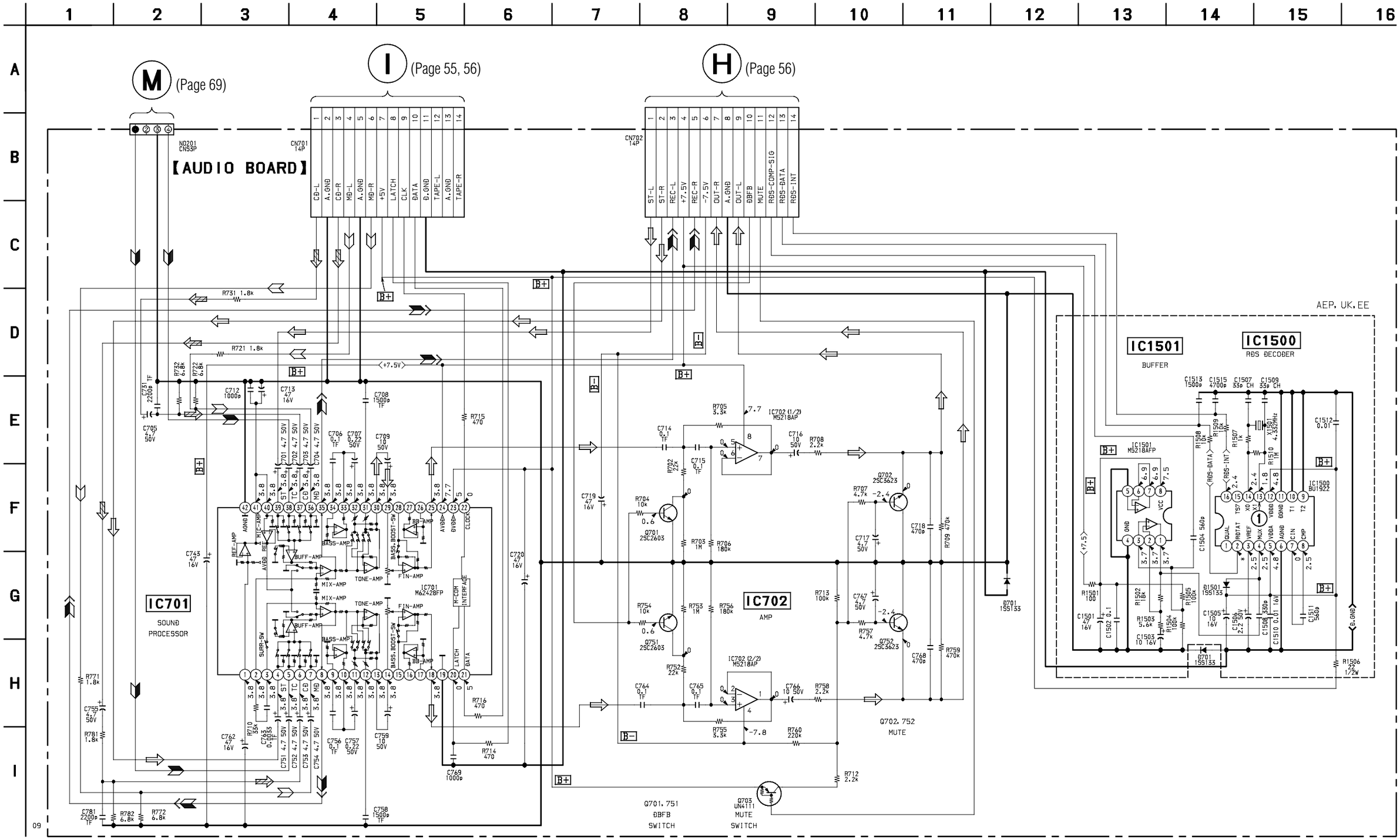



• **Semiconductor Location**

| Ref. No. | Location | Ref. No. | Location | Ref. No. | Location |
|---|---|---|---|---|---|
| D501 | A-9 | D581 | B-10 | IC603 | E-3 |
| D502 | A-9 | D582 | B-10 | IC801 | E-4 |
| D503 | A-9 | D591 | A-8 | IC840 | C-4 |
| D504 | A-9 | D601 | D-4 | IC842 | A-1 |
| D511 | D-9 | D602 | D-4 | | |
| D521 | C-7 | D603 | E-5 | Q510 | C-8 |
| D531 | E-7 | D604 | E-5 | Q520 | C-7 |
| D532 | E-7 | D605 | C-5 | Q521 | C-7 |
| D533 | D-7 | D801 | A-3 | Q530 | E-6 |
| D534 | D-7 | D802 | B-2 | Q561 | E-8 |
| D551 | C-9 | D803 | D-4 | Q562 | E-8 |
| D552 | C-9 | D881 | B-5 | Q571 | D-9 |
| D553 | C-9 | D882 | A-7 | Q572 | D-9 |
| D554 | C-9 | | | Q591 | A-7 |
| D561 | E-9 | IC510 | C-10 | Q592 | A-8 |
| D562 | E-7 | IC511 | C-10 | Q601 | E-3 |
| D563 | E-5 | IC560 | E-10 | Q602 | D-4 |
| D571 | D-9 | IC601 | D-2 | Q871 | D-4 |
| D572 | C-10 | IC602 | D-4 | Q872 | D-4 |

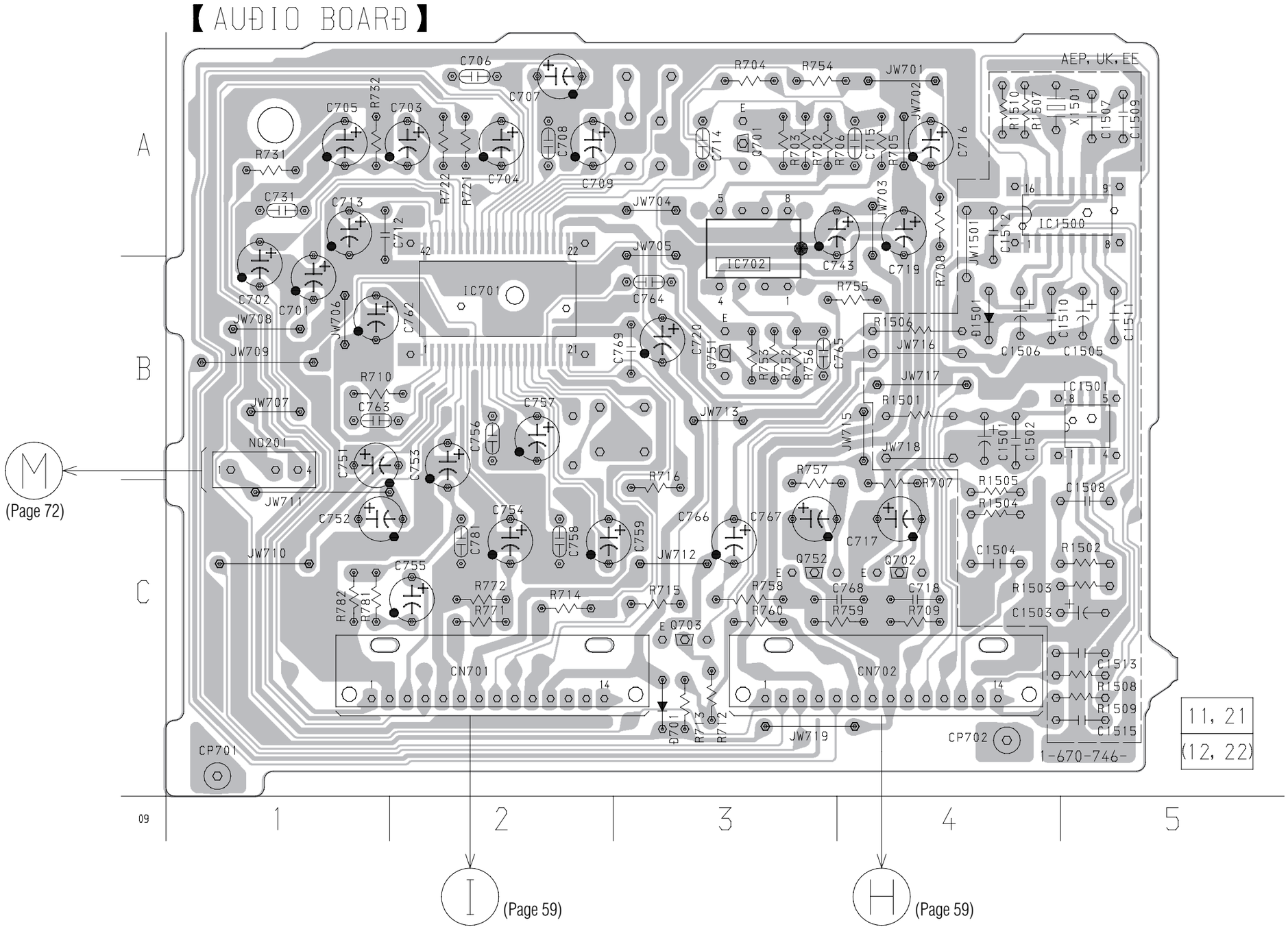
### 7-14. SCHEMATIC DIAGRAM – AUDIO SECTION –

• See page 87 for IC Block Diagrams.



**7-15. PRINTED WIRING BOARD – AUDIO SECTION –**

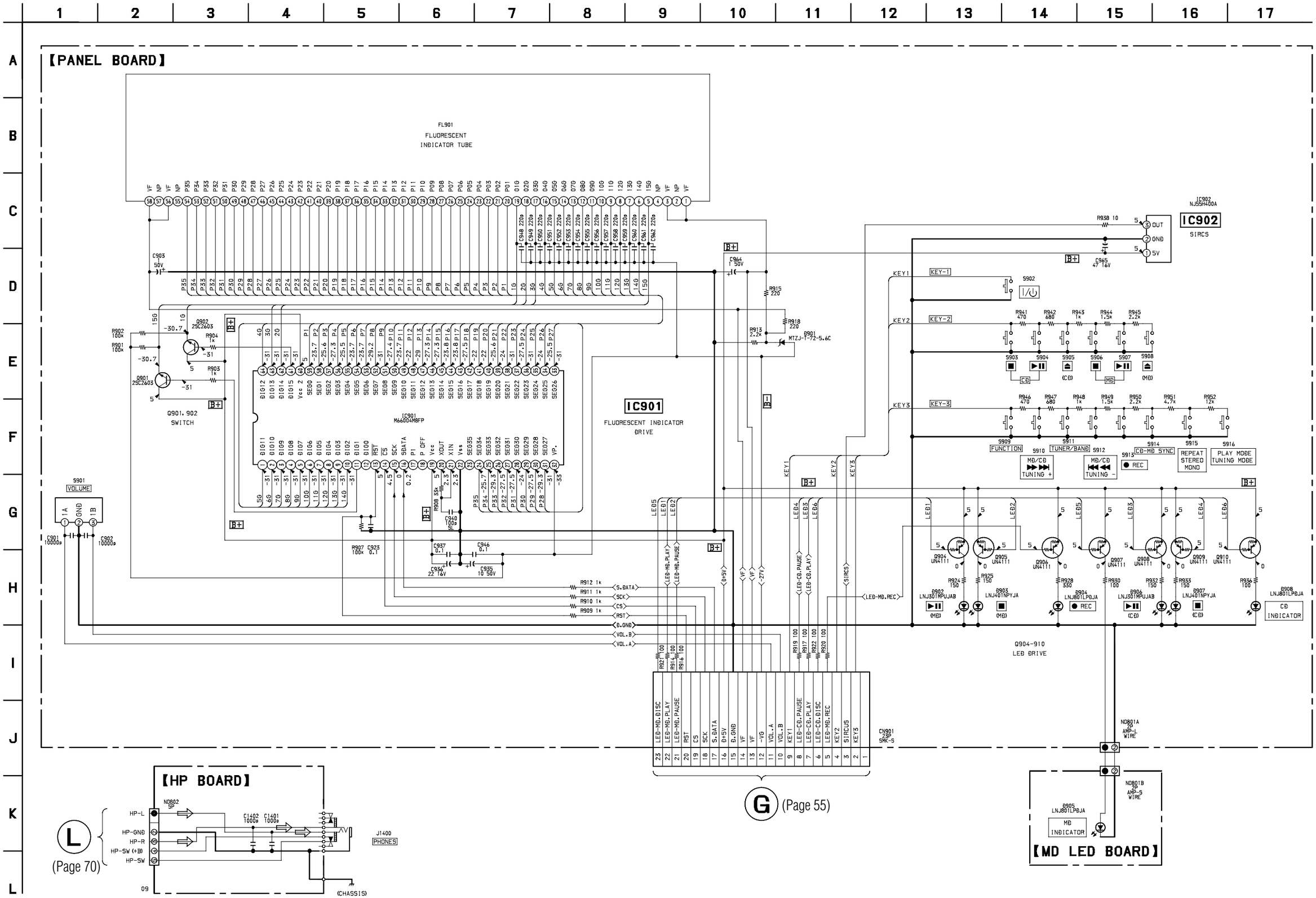
**• See page 31 for Circuit Boards Location.**




- **Semiconductor Location**

| Ref. No. | Location |
|---|---|
| D701 | C-3 |
| D1501 | B-4 |
| IC701 | B-2 |
| IC702 | B-3 |
| IC1500 | A-4 |
| IC1501 | B-5 |
| Q701 | A-3 |
| Q702 | C-4 |
| Q703 | C-3 |
| Q751 | B-3 |
| Q752 | C-3 |

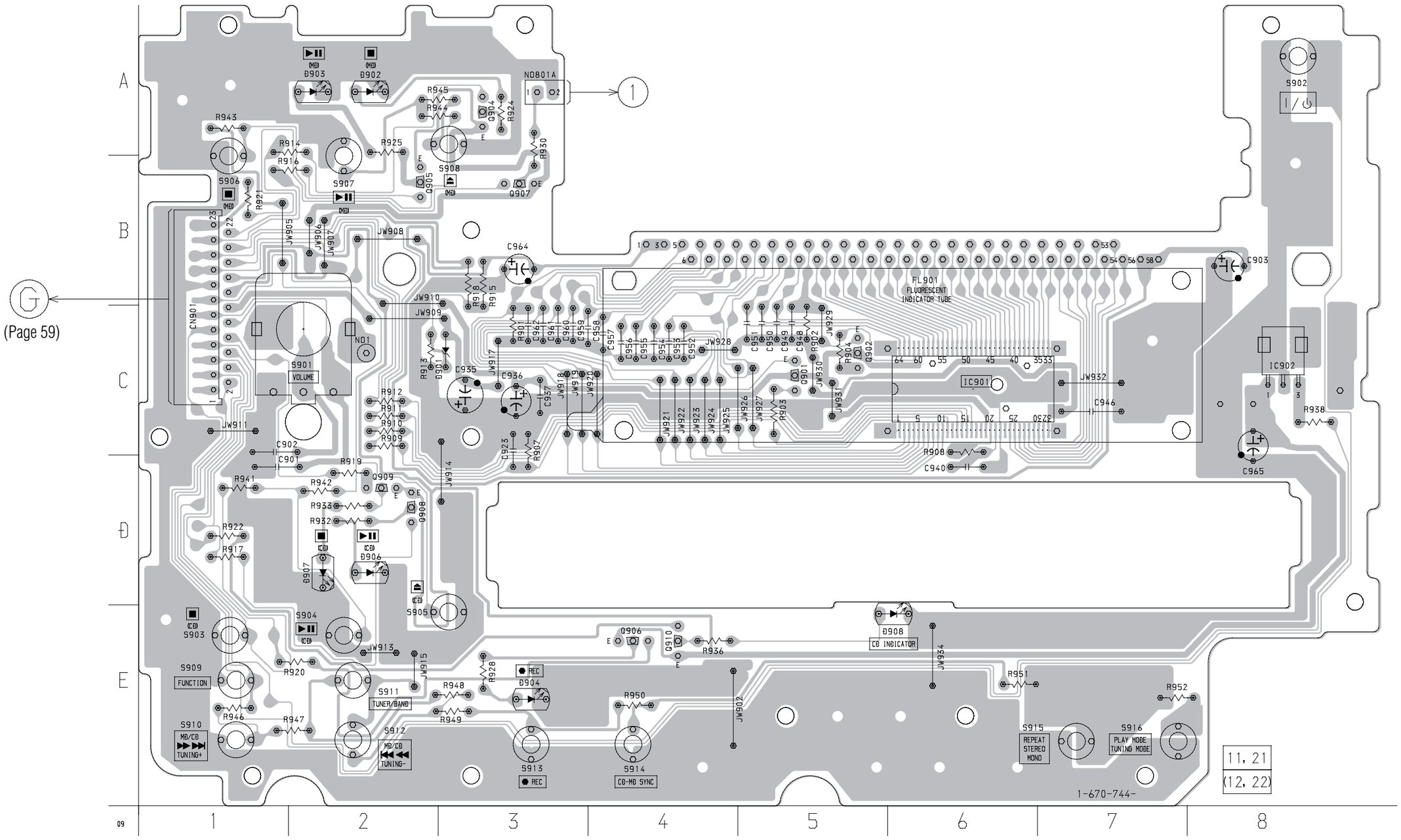
## 7-16. SCHEMATIC DIAGRAM – PANEL SECTION –



## 7-17. PRINTED WIRING BOARD – PANEL SECTION –

• See page 31 for Circuit Boards Location.

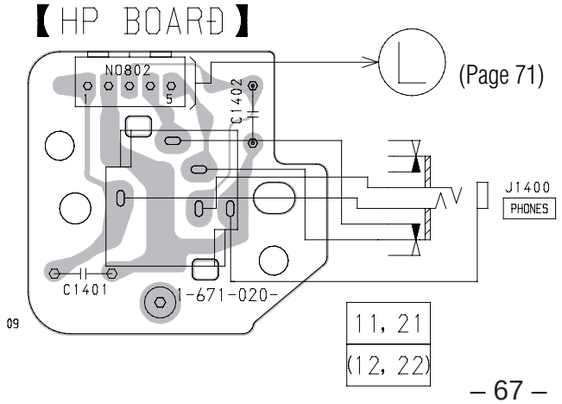
【PANEL BOARD】



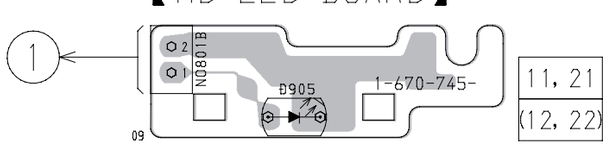

• **Semiconductor Location**

| Ref. No. | Location |
|---|---|
| D901 | C-3 |
| D902 | A-2 |
| D903 | A-2 |
| D904 | E-3 |
| D906 | D-2 |
| D907 | D-2 |
| D908 | E-6 |
| IC901 | C-6 |
| IC902 | C-8 |
| Q901 | C-5 |
| Q902 | C-5 |
| Q904 | A-3 |
| Q905 | B-2 |
| Q906 | E-4 |
| Q907 | B-3 |
| Q908 | D-2 |
| Q909 | D-2 |
| Q910 | E-4 |

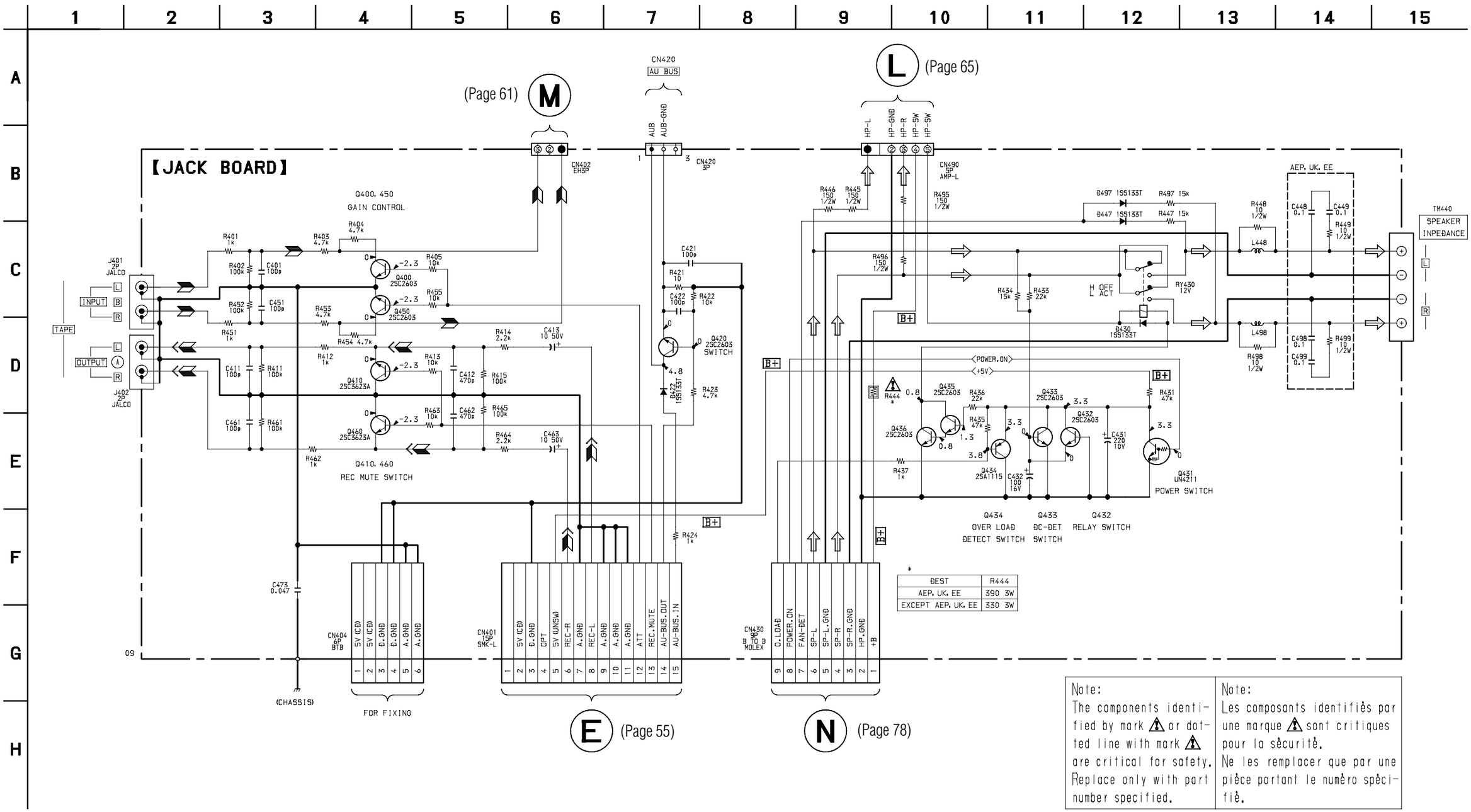
【HP BOARD】




【MD LED BOARD】



## 7-18. SCHEMATIC DIAGRAM – JACK SECTION –

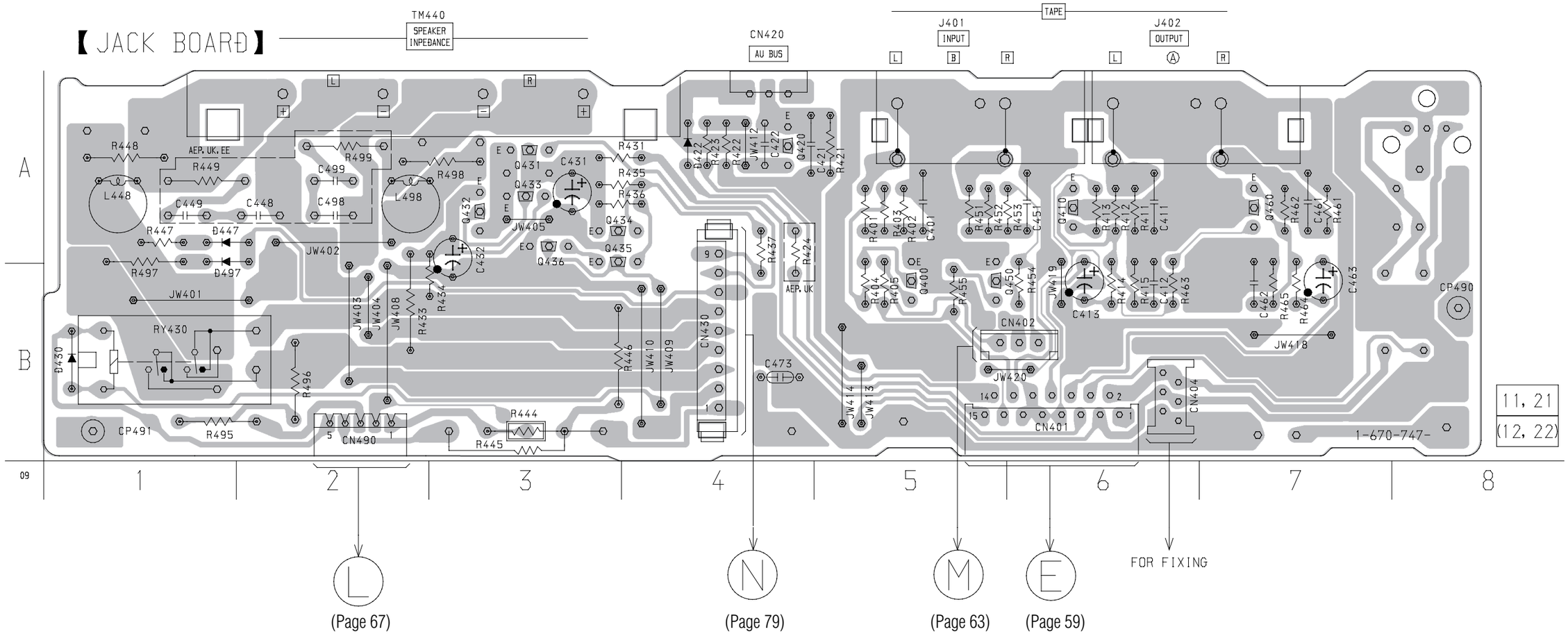



Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

### 7-19. PRINTED WIRING BOARD – JACK SECTION –

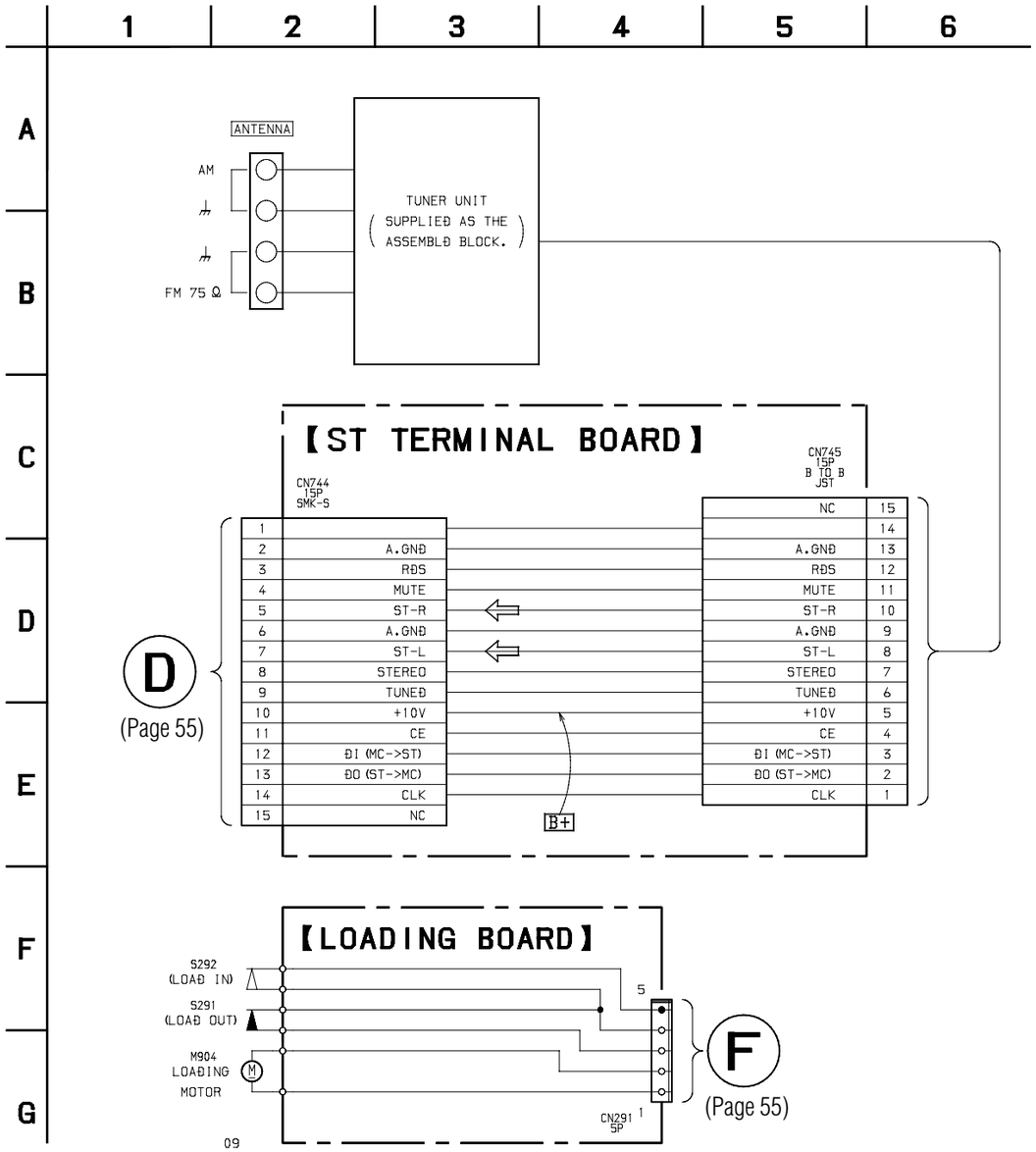
• See page 31 for Circuit Boards Location.




• **Semiconductor Location**

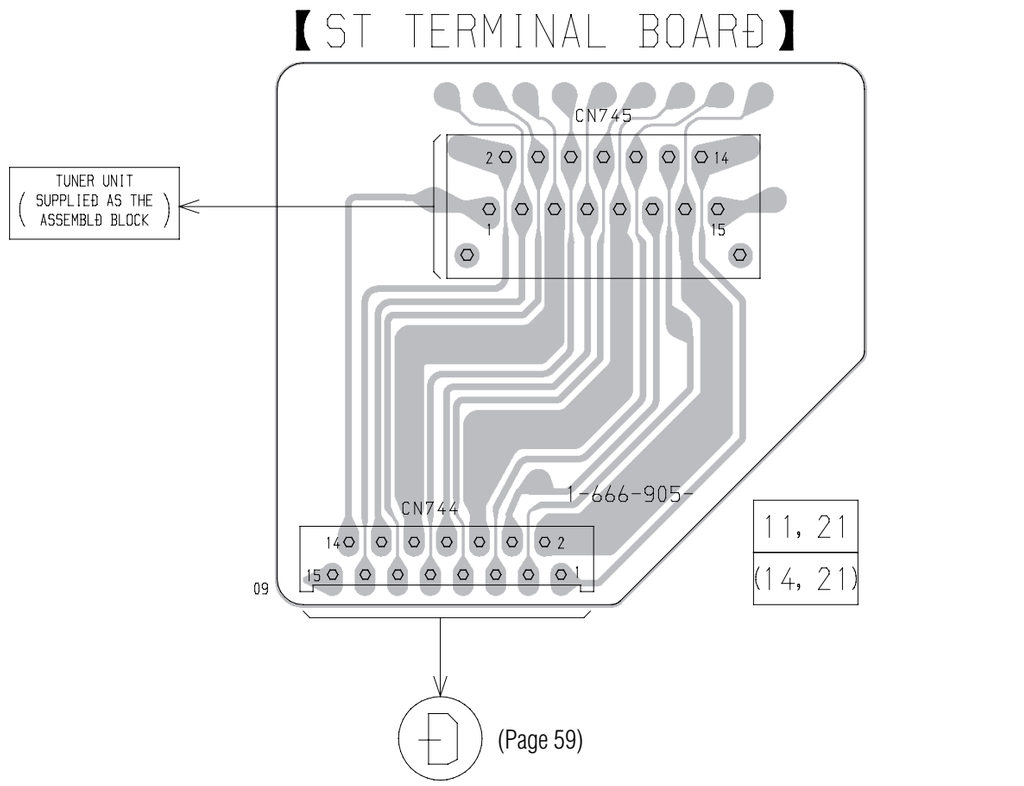
| Ref. No. | Location |
|---|---|
| D422 | A-4 |
| D430 | B-1 |
| D447 | A-1 |
| D497 | A-1 |
| IC470 | A-8 |
| Q400 | B-5 |
| Q410 | A-6 |
| Q420 | A-4 |
| Q431 | A-3 |
| Q432 | A-3 |
| Q433 | A-3 |
| Q434 | A-3 |
| Q435 | A-3 |
| Q436 | A-3 |
| Q450 | B-6 |
| Q460 | A-7 |

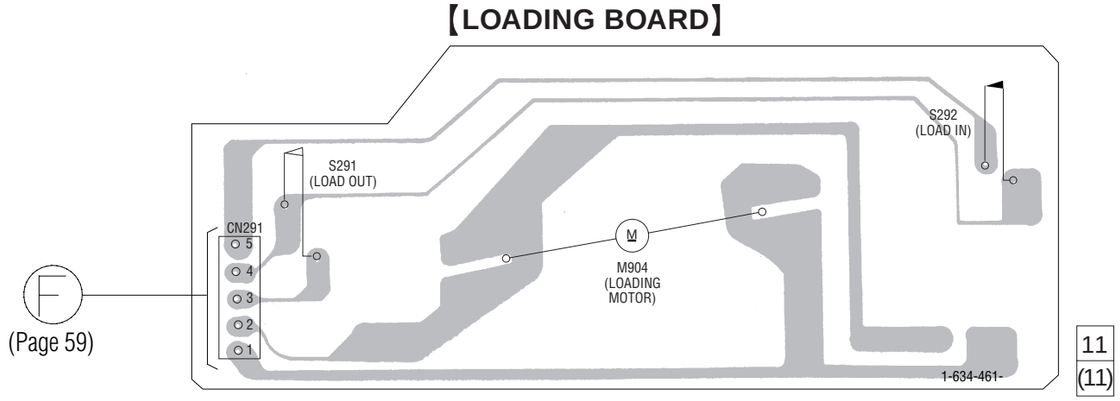
## 7-20. SCHEMATIC DIAGRAM – ST TERMINAL/LOADING SECTION –



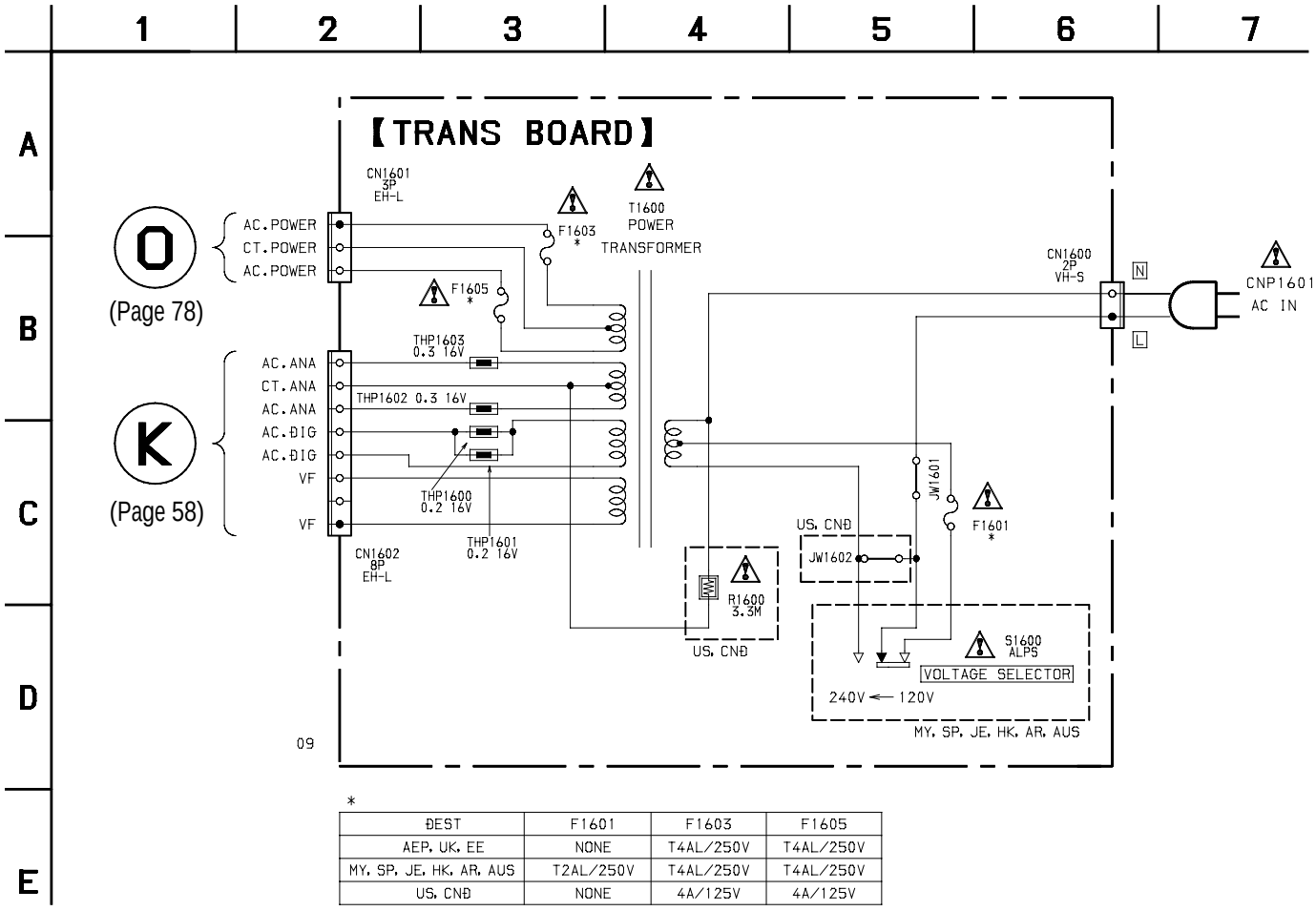

## 7-21. PRINTED WIRING BOARD – ST TERMINAL/LOADING SECTION –

• See page 31 for Circuit Boards Location.



## 7-22. SCHEMATIC DIAGRAM – TRANS SECTION –

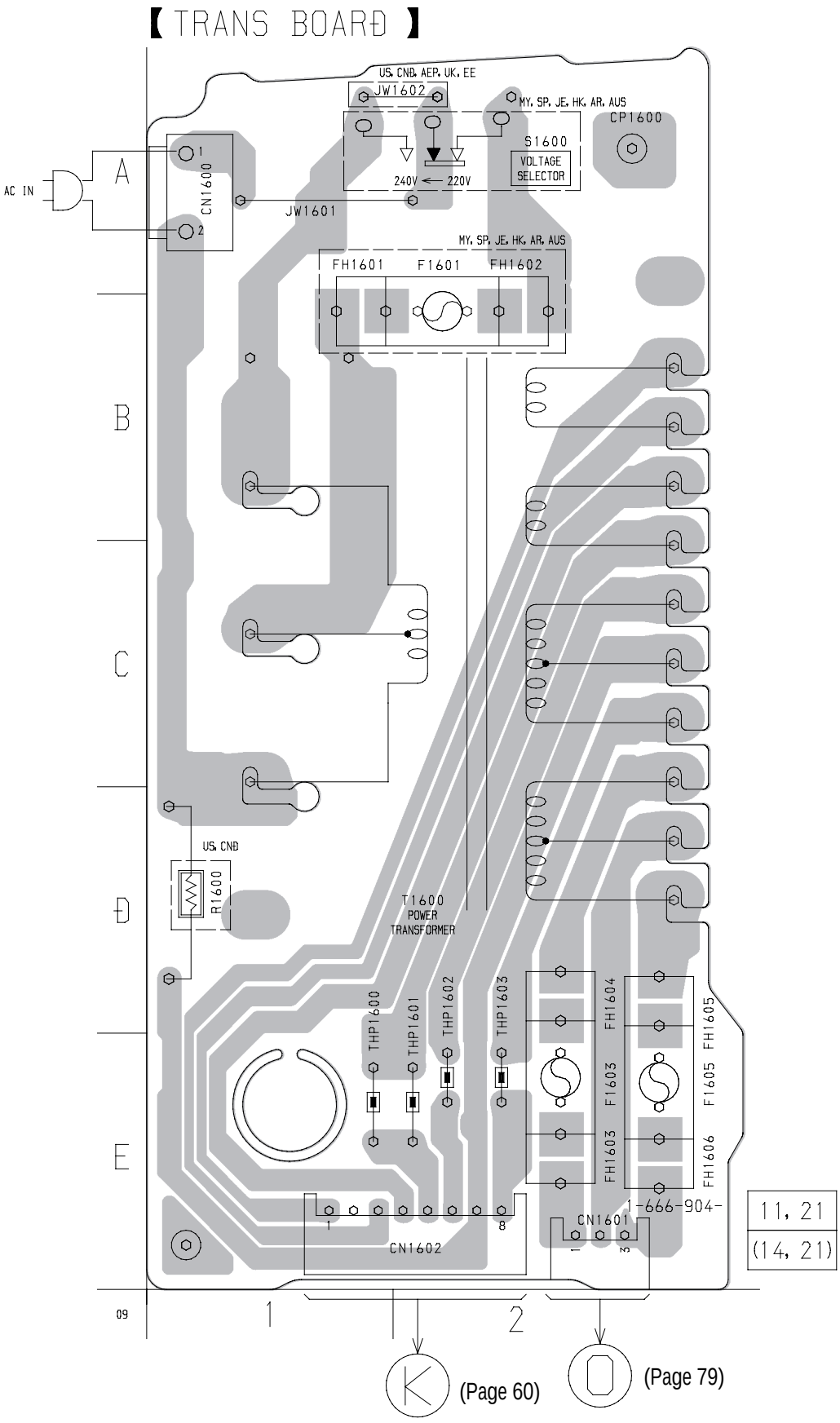



*

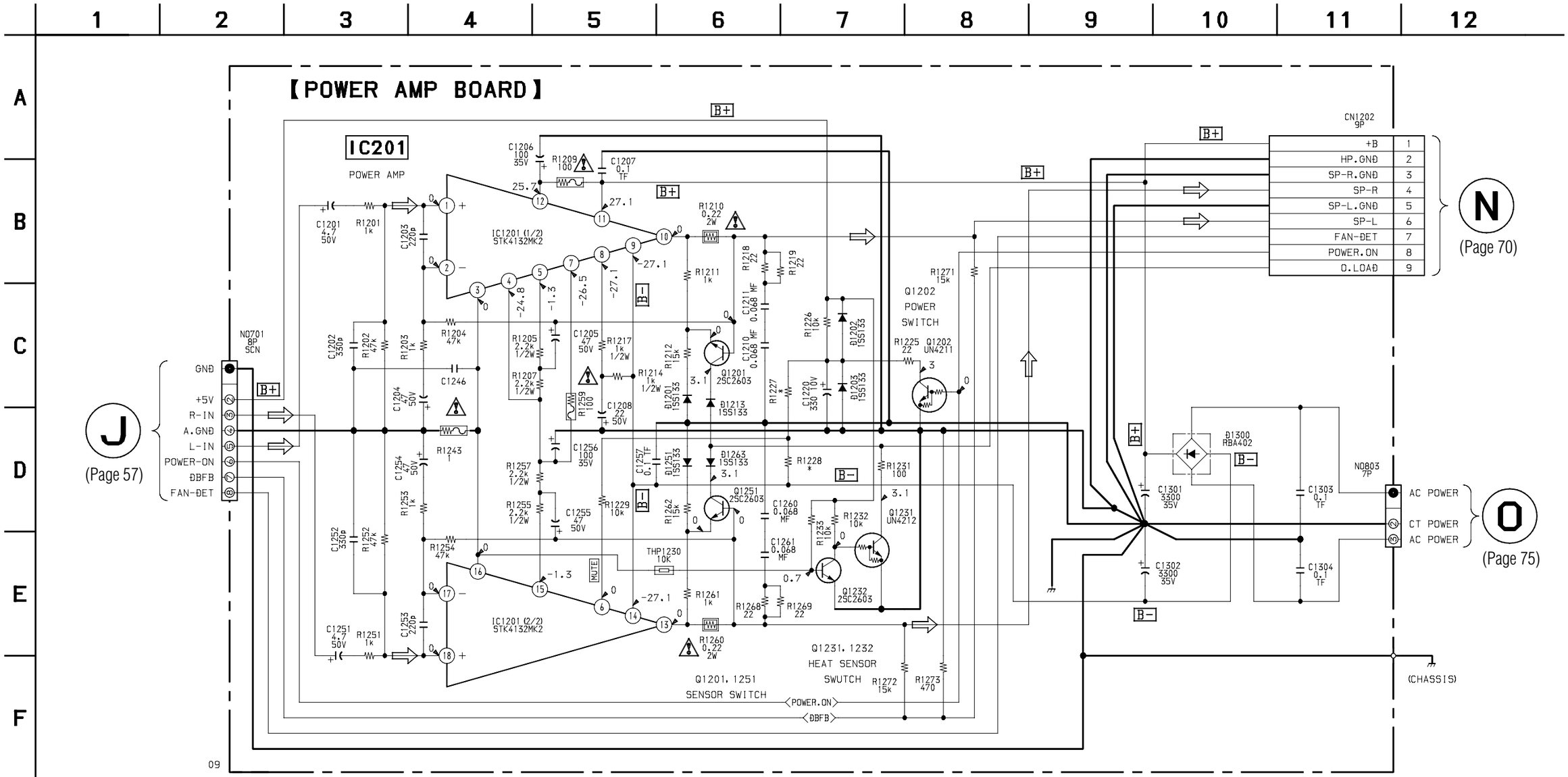
| ÐEST | F1601 | F1603 | F1605 |
|---|---|---|---|
| AEP, UK, EE | NONE | T4AL/250V | T4AL/250V |
| MY, SP, JE, HK, AR, AUS | T2AL/250V | T4AL/250V | T4AL/250V |
| US, CNÐ | NONE | 4A/125V | 4A/125V |

### 7-23. PRINTED WIRING BOARD – TRANS SECTION –

• See page 31 for Circuit Boards Location.



## 7-24. SCHEMATIC DIAGRAM – POWER AMP SECTION –



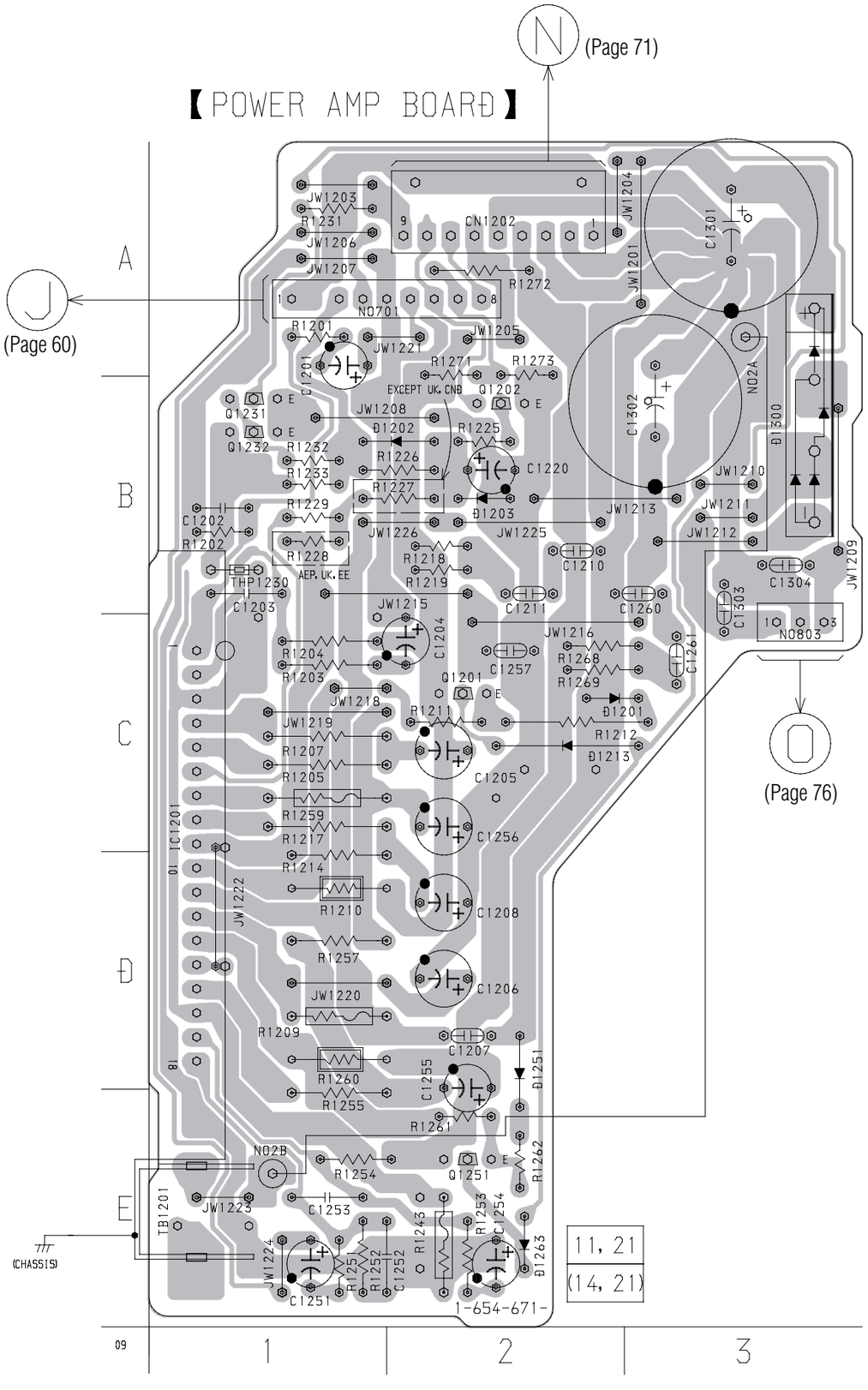

| Note: | Note: |
|---|---|
| The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié. |

*

| DEST | R1227 | R1220 |
|---|---|---|
| US, CND | 10k | 100k |
| AEP, UK, EE | 9.1k | 110k |
| MY, SP, JE, HK, AR, AUS | 9.1k | 100k |

**7-25. PRINTED WIRING BOARD – POWER AMP SECTION –**

**• See page 31 for Circuit Boards Location.**



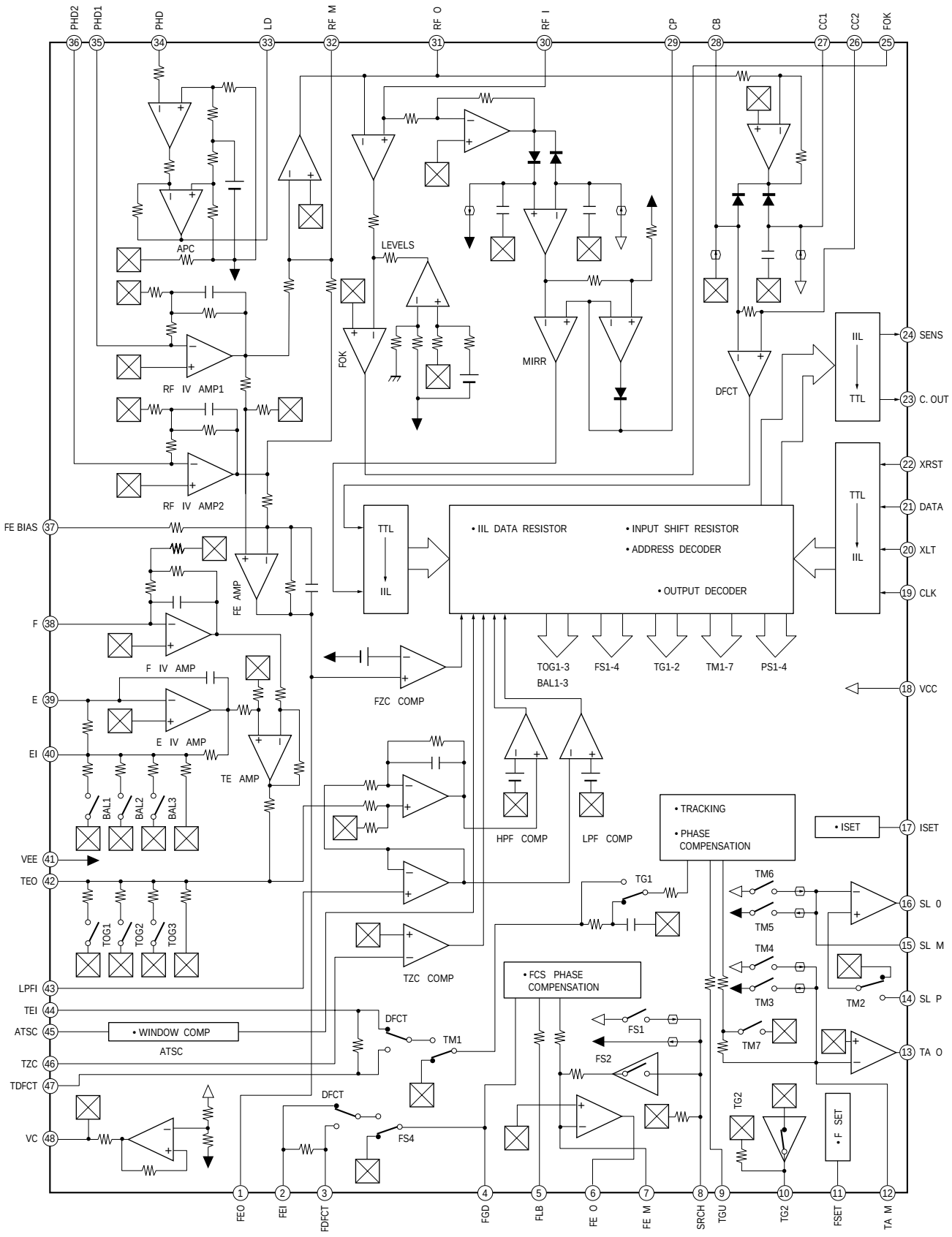

**• Semiconductor Location**

| Ref. No. | Location |
|---|---|
| D1201 | C-2 |
| D1202 | B-1 |
| D1203 | B-2 |
| D1213 | C-2 |
| D1251 | D-2 |
| D1263 | E-2 |
| D1300 | B-3 |
| IC1201 | C-1 |
| Q1201 | C-2 |
| Q1202 | B-2 |
| Q1231 | B-1 |
| Q1232 | B-1 |
| Q1251 | E-2 |

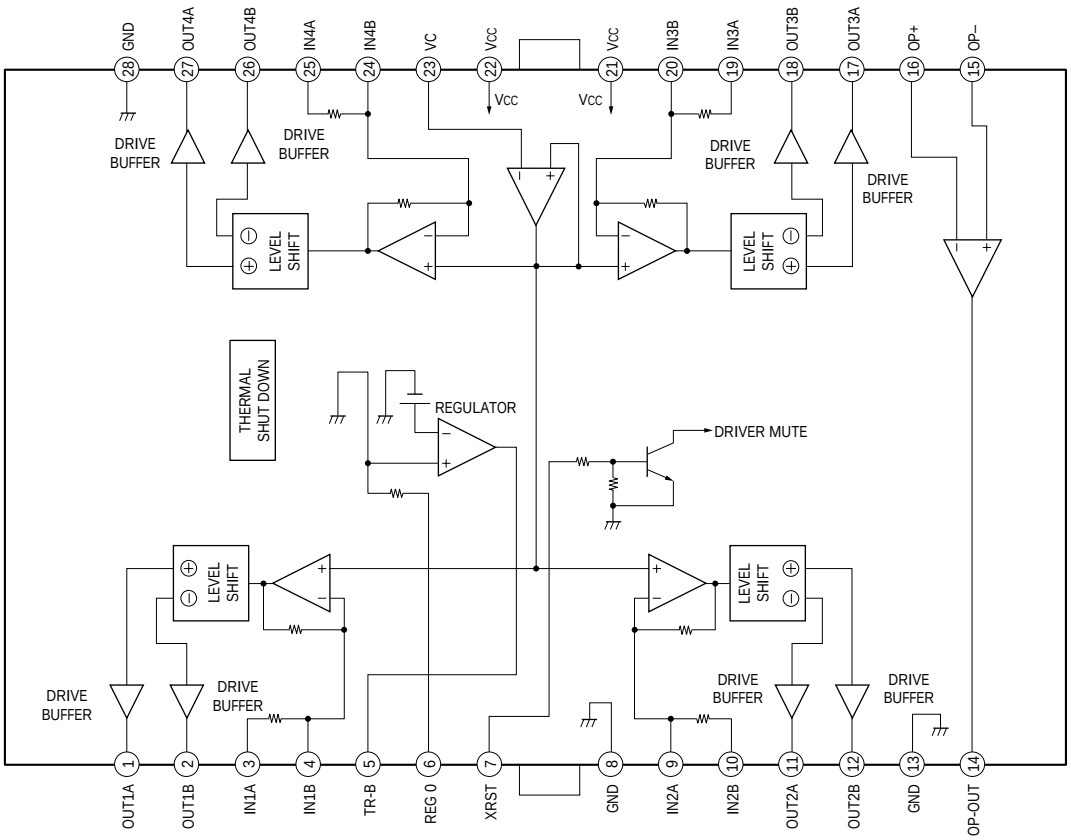
## 7-26. IC BLOCK DIAGRAMS

**• CD section**

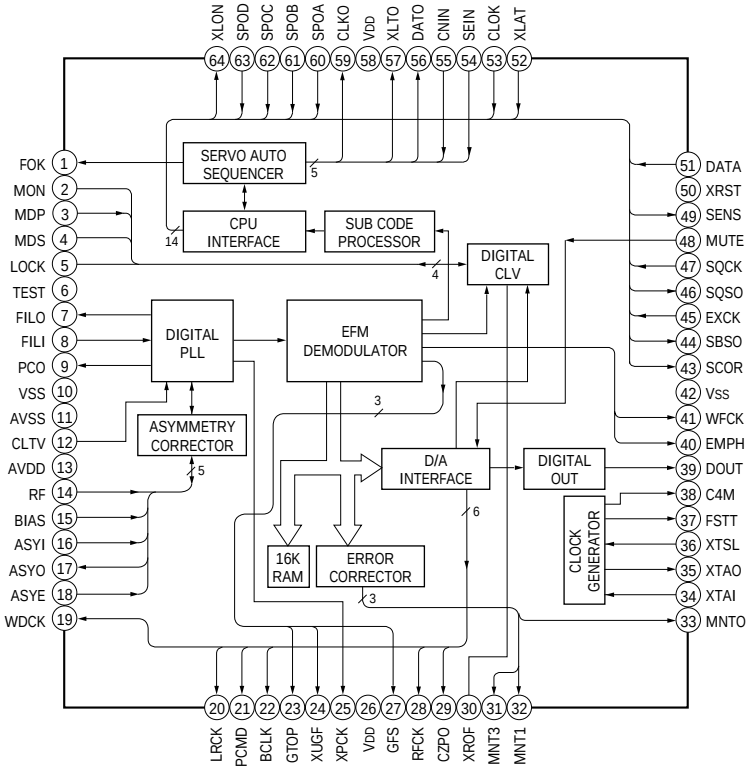
**IC101 CXA1782BQ**



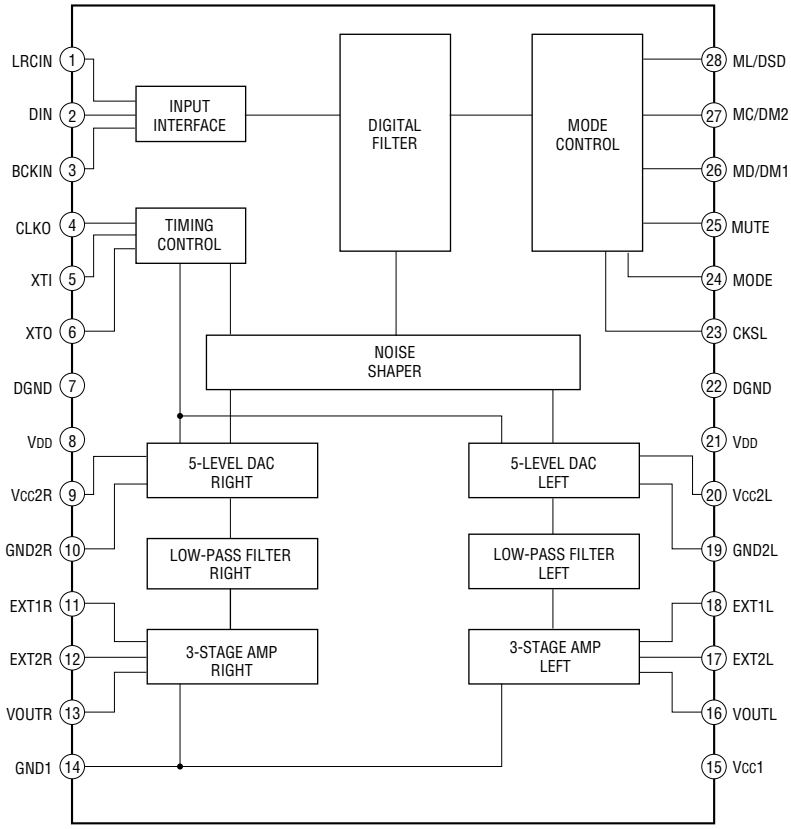
**IC102 BA6397FP**




**IC103 CXD2507AQ**

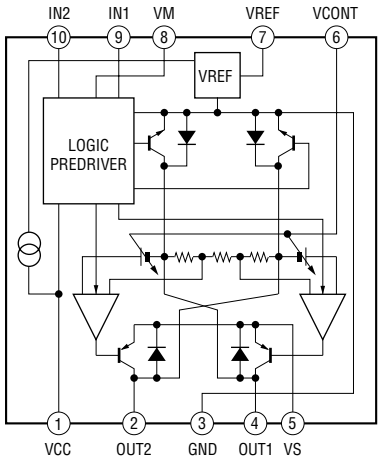


**IC104 PCM1710U-B**

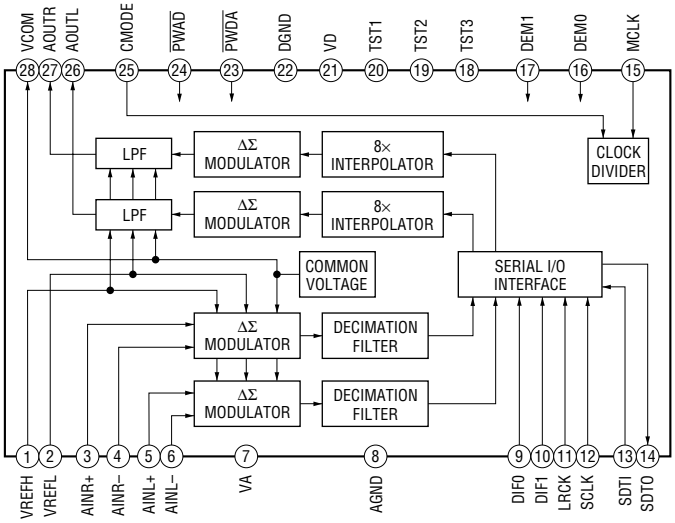



**– MD Section –**

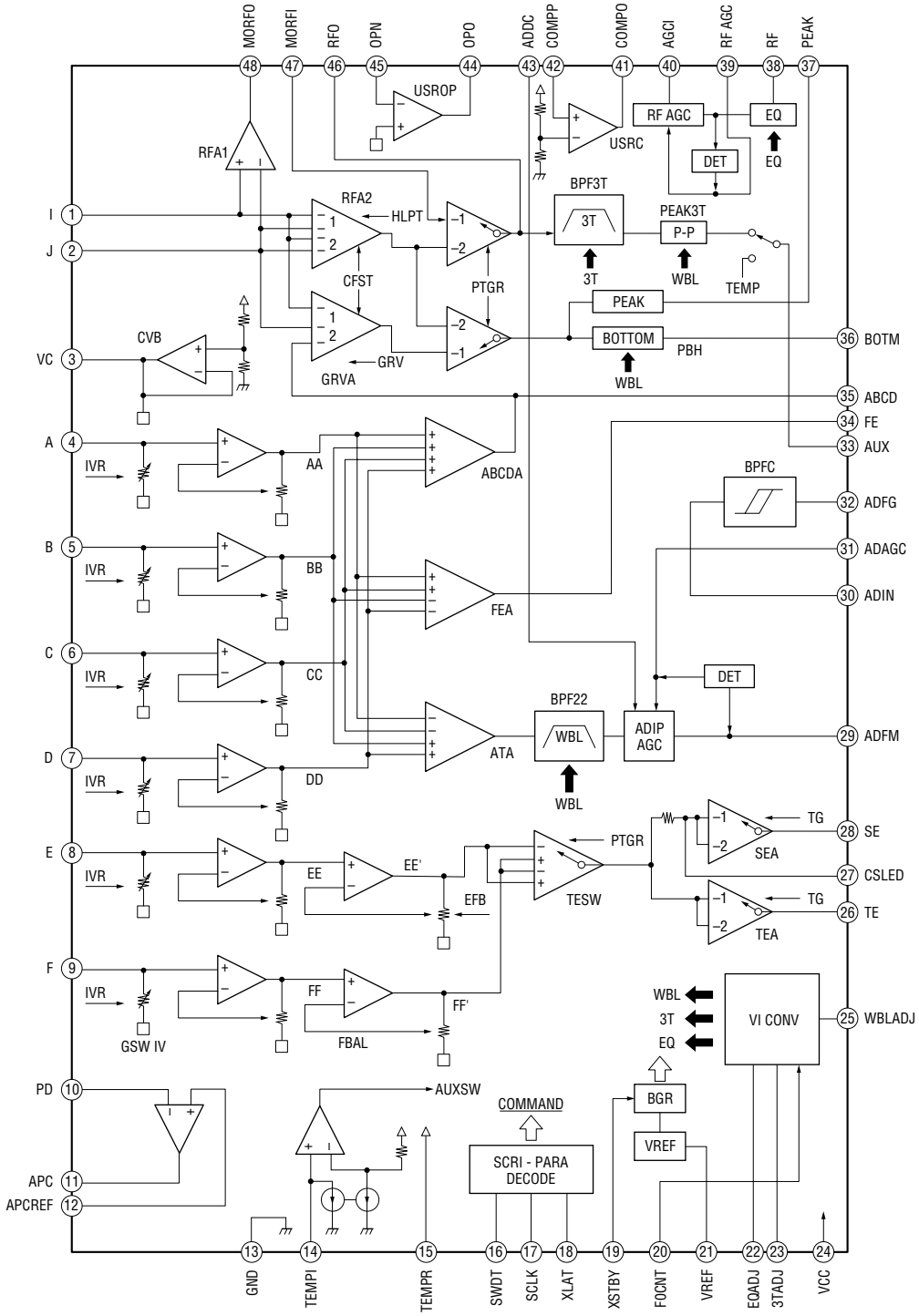
**IC153 LB1830-S-TE-L**



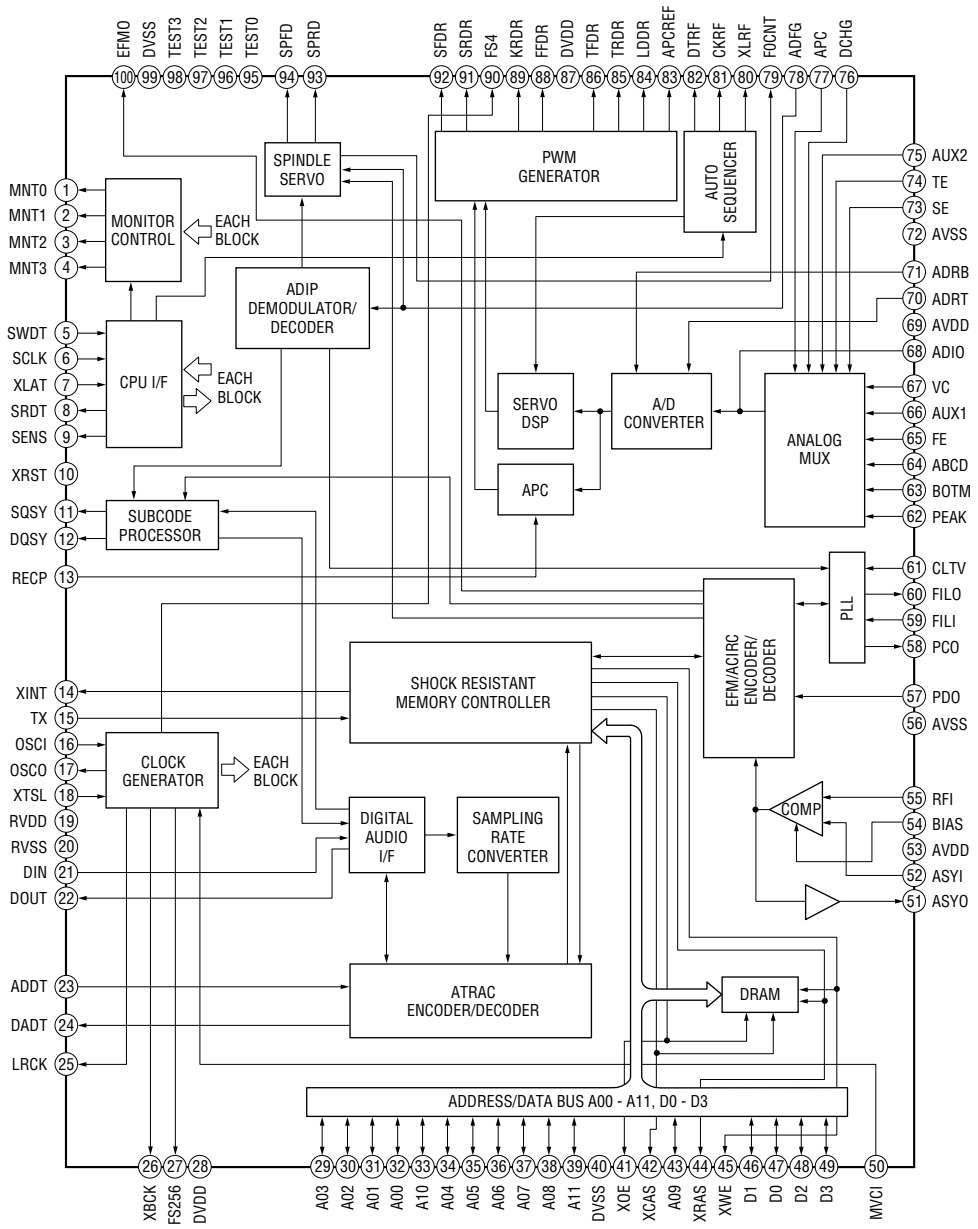

**IC201 AK4520A-VF-E2**



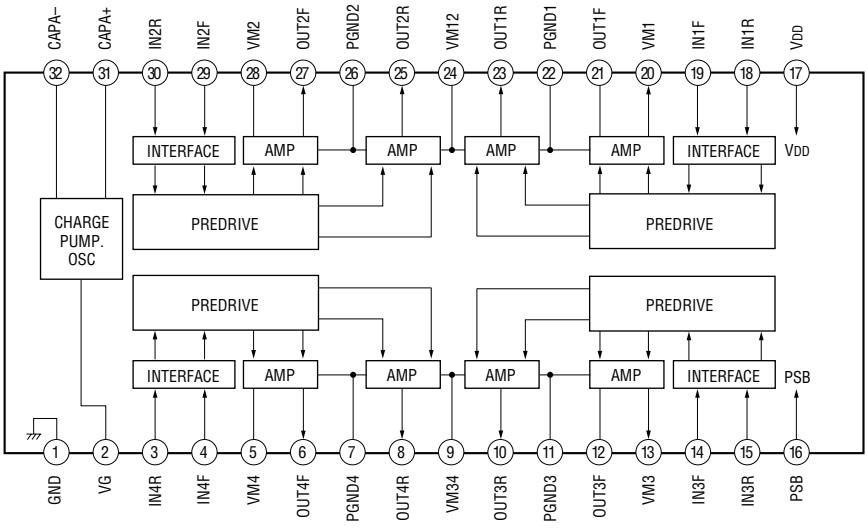
**IC101 CXA2523AR**



**IC121 CXD2652AR**

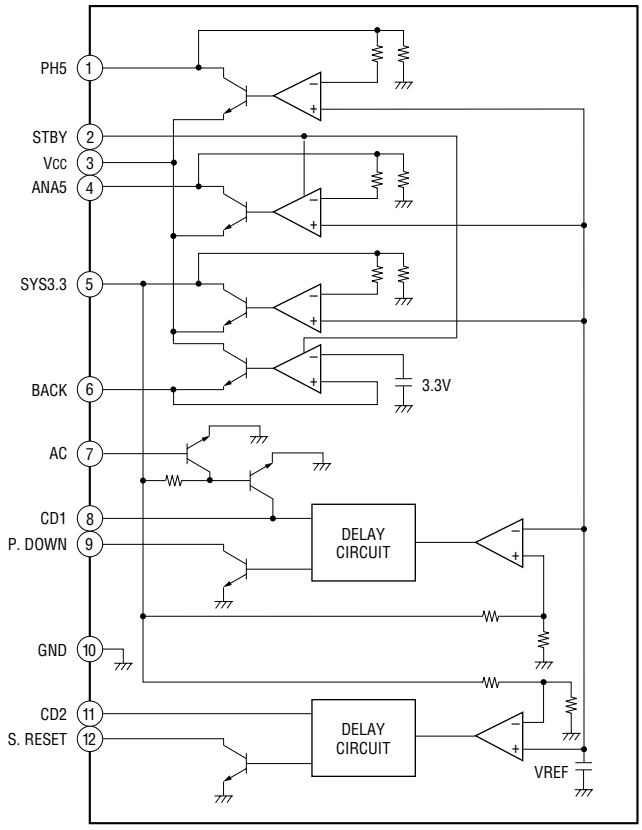



**IC152 BH6511FS-E2**

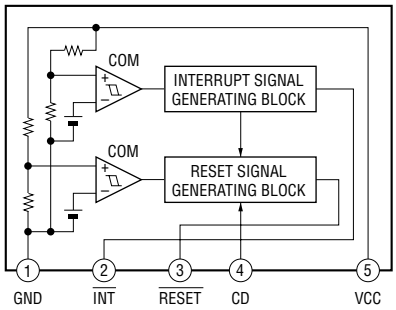


**– MAIN Section –**

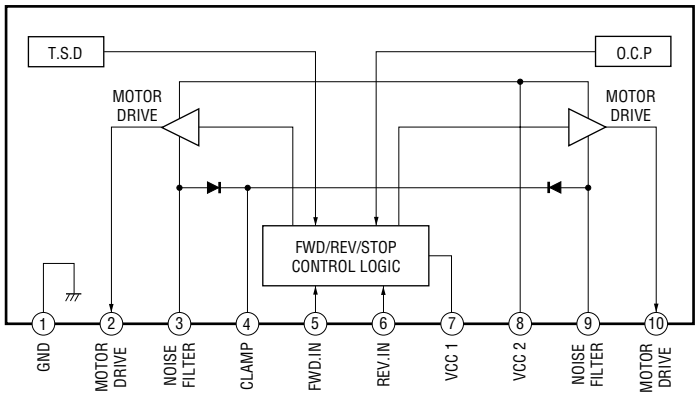
**IC570 LA5620**




**IC603 M62016L**

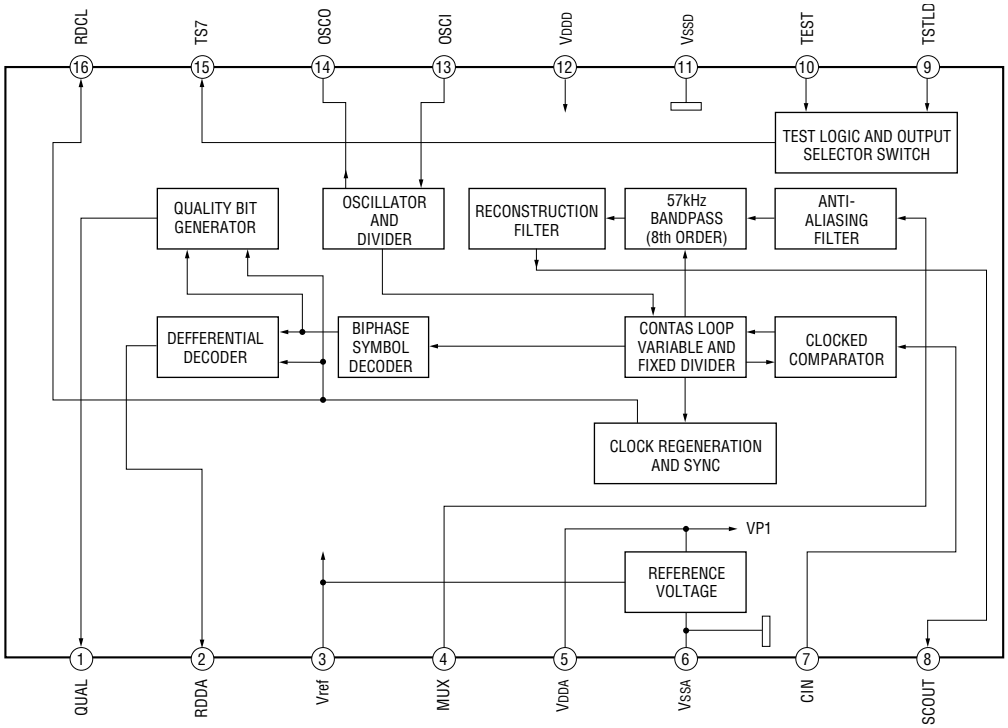



**IC801 LB1641**



**– AUDIO Section –**

**IC1500 BU1922F**



## 7-27. IC PIN FUNCTIONS

**• IC101 CXA2523AR (RF Amplifier) (BD (MD) Board)**

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | I | I | I-V converted RF signal I input from the optical pick-up block detector |
| 2 | J | I | I-V converted RF signal J input from the optical pick-up block detector |
| 3 | VC | O | Middle point voltage (+1.65V) generation output terminal |
| 4 to 9 | A to F | I | Signal input from the optical pick-up detector |
| 10 | PD | I | Light amount monitor input terminal |
| 11 | APC | O | Laser amplifier output terminal to the automatic power control circuit |
| 12 | APCREF | I | Reference voltage input terminal for setting laser power |
| 13 | GND | — | Ground terminal |
| 14 | TEMPI | I | Connected to the temperature sensor |
| 15 | TEMPR | O | Output terminal for a temperature sensor reference voltage |
| 16 | SWDT | I | Writing serial data input from the CXD2652AR (IC121) |
| 17 | SCLK | I | Serial clock signal input from the CXD2652AR (IC121) |
| 18 | XLAT | I | Serial latch signal input from the CXD2652AR (IC121) |
| 19 | $\overline{\text{XSTBY}}$ | I | Standby signal input terminal "L": standby (fixed at "H" in this set) |
| 20 | F0CNT | I | Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2652AR (IC121) |
| 21 | VREF | O | Reference voltage output terminal Not used (open) |
| 22 | EQADJ | I | Center frequency setting terminal for the internal circuit (EQ) |
| 23 | 3TADJ | I | Center frequency setting terminal for the internal circuit (BPF3T) |
| 24 | VCC | — | Power supply terminal (+3.3V) |
| 25 | WBLADJ | I | Center frequency setting terminal for the internal circuit (BPF22) |
| 26 | TE | O | Tracking error signal output to the CXD2652AR (IC121) |
| 27 | CSLED | I | Connected to the external capacitor for low-pass filter of the sled error signal |
| 28 | SE | O | Sled error signal output to the CXD2652AR (IC121) |
| 29 | ADFM | O | FM signal output of the ADIP |
| 30 | ADIN | I | Receives a ADIP FM signal in AC coupling |
| 31 | ADAGC | I | Connected to the external capacitor for ADIP AGC |
| 32 | ADFG | O | ADIP duplex signal (22.05 kHz ± 1 kHz) output to the CXD2652AR (IC121) |
| 33 | AUX | O | Auxiliary signal (I3 signal/temperature signal) output to the CXD2652AR (IC121) |
| 34 | FE | O | Focus error signal output to the CXD2652AR (IC121) |
| 35 | ABCD | O | Light amount signal (ABCD) output to the CXD2652AR (IC121) |
| 36 | BOTM | O | Light amount signal (RF/ABCD) bottom hold output to the CXD2652AR (IC121) |
| 37 | PEAK | O | Light amount signal (RF/ABCD) peak hold output to the CXD2652AR (IC121) |
| 38 | RF | O | Playback EFM RF signal output to the CXD2652AR (IC121) |
| 39 | RFAGC | I | Connected to the external capacitor for RF auto gain control circuit |
| 40 | AGCI | I | Receives a RF signal in AC coupling |
| 41 | COMPO | O | User comparator output terminal Not used (open) |
| 42 | COMPP | I | User comparator input terminal Not used (fixed at "L") |
| 43 | ADDC | I | Connected to the external capacitor for cutting the low band of the ADIP amplifier |
| 44 | OPO | O | User operational amplifier output terminal Not used (open) |
| 45 | OPN | I | User operational amplifier inversion input terminal Not used (fixed at "L") |
| 46 | RFO | O | RF signal output terminal |
| 47 | MORFI | I | Receives a MO RF signal in AC coupling |
| 48 | MORFO | O | MO RF signal output terminal |

• **IC121 Digital Signa; Processor, Digitak Servo Signal Processor, EFM/ACIRC Encoder/Decoder, Shock-proof Memory Controller, ATRAC Encoder/Decoder, 2M Bit DRAM (CXD2652R) (BD (MD) Board)**

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | MNT0 (FOK) | O | Focus OK signal output to the MD system controller (IC316)<br>"H" is output when focus is on |
| 2 | MNT1 (SHCK) | O | Track jump detection signal output to the MD system controller (IC316) |
| 3 | MNT2 (XBUSY) | O | Monitor 2 signal output to the MD system controller (IC316) |
| 4 | MNT3 (SLOC) | O | Monitor 3 signal output to the MD system controller (IC316) |
| 5 | SWDT | I | Writing data signal input from the MD system controller (IC316) |
| 6 | SCLK | I | Serial clock signal input from the MD system controller (IC316) |
| 7 | XLAT | I | Serial latch signal input from the MD system controller (IC316) |
| 8 | SRDT | O (3) | Reading data signal output to the MD system controller (IC316) |
| 9 | SENS | O (3) | Internal status (SENSE) output to the MD system controller (IC316) |
| 10 | $\overline{\text{XRST}}$ | I | Reset signal input from the MD system controller (IC316) "L": reset |
| 11 | SQSY | O | Subcode Q sync (SCOR) output to the MD system controller (IC316)<br>"L" is output every 13.3 msec Almost all, "H" is output |
| 12 | DQSY | O | Digital In U-bit CD format subcode Q sync (SCOR) output to the MD system controller (IC316) "L" is output every 13.3 msec Almost all, "H" is output |
| 13 | RECP | I | Laser power selection signal input from the MD system controller (IC316)<br>"H": recording mode, "L": playback mode |
| 14 | XINT | O | Interrupt status output to the MD system controller (IC316) |
| 15 | TX | I | Recording data output enable signal input from the MD system controller (IC316)<br>Writing data transmission timing input (Also serves as the magnetic head on/off output) |
| 16 | OSCI | I | System clock signal (512Fs=22.5792 MHz) input terminal |
| 17 | OSCO | O | System clock signal (512Fs=22.5792 MHz) output terminal |
| 18 | XTSL | I | Input terminal for the system clock frequency setting "L": 45.1584 MHz, "H": 22.5792 MHz (fixed at "H" in this set) |
| 19 | RVDD | — | Power supply terminal (+3.3V) (digital system) |
| 20 | RVSS | — | Ground terminal (digital system) |
| 21 | DIN | I | Digital audio signal input terminal when recording mode (for optical in) |
| 22 | DOUT | O | Digital audio signal output terminal when playback mode (for optical out) Not used |
| 23 | ADDT | I | Recording data input from the A/D, D/A converter (IC201) |
| 24 | DADT | O | Playback data output to the A/D, D/A converter (IC201) |
| 25 | LRCK | O | L/R sampling clock signal (44.1 kHz) output to the A/D, D/A converter (IC201) |
| 26 | XBCK | O | Bit clock signal (2.8224 MHz) output to the A/D, D/A converter (IC201) |
| 27 | FS256 | O | Clock signal (11.2896 MHz) output to the A/D, D/A converter (IC201) |
| 28 | DVDD | — | Power supply terminal (+3.3V) (digital system) |
| 29 | A03 | O | Address signal output to the external D-RAM (IC124) |
| 30 | A02 | O | |
| 31 | A01 | O | |
| 32 | A00 | O | |
| 33 | A10 | O | |
| 34 | A04 | O | |
| 35 | A05 | O | |
| 36 | A06 | O | |
| 37 | A07 | O | |
| 38 | A08 | O | |
| 39 | A11 | O | |

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 40 | DVSS | — | Ground terminal (digital system) |
| 41 | XOE | O | Output enable signal output to the external D-RAM (IC124) |
| 42 | XCAS | O | Column address strobe signal output to the external D-RAM (IC124) |
| 43 | A09 | O | Address signal output to the external D-RAM (IC124) |
| 44 | XRAS | O | Row address strobe signal output to the external D-RAM (IC124) |
| 45 | XWE | O | Write enable signal output to the external D-RAM (IC124) |
| 46 | D1 | I/O | Two-way data bus for the external D-RAM (IC124) |
| 47 | D0 | I/O | |
| 48 | D2 | I/O | |
| 49 | D3 | I/O | |
| 50 | MVCI | I | Digital in PLL oscillation input from the external VCO Not used (fixed at “L”) |
| 51 | ASYO | O | Playback EFM full-swing output |
| 52 | ASYI | I (A) | Playback EFM asymmetry comparator voltage input |
| 53 | AVDD | — | Power supply terminal (+3.3V) (analog system) |
| 54 | BIAS | I (A) | Playback EFM asymmetry circuit constant current input |
| 55 | RFI | I (A) | Playback EFM RF signal input from the CXA2523AR (IC101) |
| 56 | AVSS | — | Ground terminal (analog system) |
| 57 | PDO | O (3) | Phase comparison output for clock playback analog PLL of the playback EFM<br>Not used (open) |
| 58 | PCO | O (3) | Phase comparison output for master clock of the recording/playback EFM master PLL |
| 59 | FILI | I (A) | Filter input for master clock of the recording/playback master PLL |
| 60 | FILO | O (A) | Filter output for master clock of the recording/playback master PLL |
| 61 | CLTV | I (A) | Internal VCO control voltage input of the recording/playback master PLL |
| 62 | PEAK | I (A) | Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC101) |
| 63 | BOTM | I (A) | Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC101) |
| 64 | ABCD | I (A) | Light amount signal (ABCD) input from the CXA2523AR (IC101) |
| 65 | FE | I (A) | Focus error signal input from the CXA2523AR (IC101) |
| 66 | AUX1 | I (A) | Auxiliary signal (I3 signal/temperature signal) input from the CXA2523AR (IC101) |
| 67 | VC | I (A) | Middle point voltage (+1.65V) input from the CXA2523AR (IC101) |
| 68 | ADIO | O (A) | Monitor output of the A/D converter input signal Not used (open) |
| 69 | AVDD | — | Power supply terminal (+3.3V) (analog system) |
| 70 | ADRT | I (A) | A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set) |
| 71 | ADRB | I (A) | A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set) |
| 72 | AVSS | — | Ground terminal (analog system) |
| 73 | SE | I (A) | Sled error signal input from the CXA2523AR (IC101) |
| 74 | TE | I (A) | Tracking error signal input from the CXA2523AR (IC101) |
| 75 | AUX2 | I (A) | Auxiliary signal input terminal Not used (fixed at “H”) |
| 76 | DCHG | I (A) | Connected to the +3.3V power supply |
| 77 | APC | I (A) | Error signal input for the laser automatic power control Not used (fixed at “L”) |
| 78 | ADFG | I | ADIP duplex FM signal (22.05 kHz ± 1 kHz) input from the CXA2523AR (IC101) |
| 79 | F0CNT | O | Filter f0 control signal output to the CXA2523AR (IC101) |
| 80 | XLRF | O | Serial latch signal output to the CXA2523AR (IC101) |
| 81 | CKRF | O | Serial clock signal output to the CXA2523AR (IC101) |
| 82 | DTRF | O | Writing data output to the CXA2523AR (IC101) |

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 83 | APCREF | O | Control signal output to the reference voltage generator circuit for the laser automatic power control |
| 84 | LDDR | O | PWM signal output for the laser automatic power control Not used (open) |
| 85 | TRDR | O | Tracking servo drive PWM signal (–) output to the BH6511FS (IC152) |
| 86 | TFDR | O | Tracking servo drive PWM signal (+) output to the BH6511FS (IC152) |
| 87 | DVDD | — | Power supply terminal (+3.3V) (digital system) |
| 88 | FFDR | O | Focus servo drive PWM signal (+) output to the BH6511FS (IC152) |
| 89 | FRDR | O | Focus servo drive PWM signal (–) output to the BH6511FS (IC152) |
| 90 | FS4 | O | Clock signal (176.4 kHz) output terminal (X'tal system) Not used (open) |
| 91 | SRDR | O | Sled servo drive PWM signal (–) output to the BH6511FS (IC152) |
| 92 | SFDR | O | Sled servo drive PWM signal (+) output to the BH6511FS (IC152) |
| 93 | SPRD | O | Spindle servo drive PWM signal (–) output to the BH6511FS (IC152) |
| 94 | SPFD | O | Spindle servo drive PWM signal (+) output to the BH6511FS (IC152) |
| 95 | FGIN | I | Input terminal for the test (fixed at "L") |
| 96 | TEST1 | I | |
| 97 | TEST2 | I | |
| 98 | TEST3 | I | |
| 99 | DVSS | — | Ground terminal (digital system) |
| 100 | EFMO | O | EFM signal output terminal when recording mode |

**• IC316 M30610MCA-272FP (MD SYSTEM CONTROL) (BD (MD) BOARD)**

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1,2 | (JOG0, JOG1) | I | Encoder switch signal input terminal Not used (fixed at “H”) |
| 3,4 | DAOUT1, DAOUT2 | O | Not used (fixed at “L”) |
| 5 | SQSY | I | Subcode Q sync (SCOR) input from the CXD2652AR (IC121) |
| 6 | REMCON | I | Remote control signal input |
| 7 | EMP | O | De-emphasis control signal output to the AK4520 (IC201) |
| 8 | BYTE | I | External data bus line byte select signal input terminal “L”:16bit “H”: 8bit (fixed at “L”) |
| 9 | CNVSS | I | Processor mode select signal input terminal (fixed at “L”) |
| 10 | XIN-T | I | Sub system clock input tarminal Not used (fixed at “L”) |
| 11 | (XOUT-T) | O | Sub sytem clock output tarminal Not used (fixed at “L”) |
| 12 | SYSTEM-RST | I | MD reset signal input from the M62016 (IC603) |
| 13 | XOUT | O | Main system clock signal output terminal |
| 14 | GND | — | Ground terminal |
| 15 | XIN | I | Main sytem clock signal input terminal |
| 16 | +3V | — | Power supply terminal (+3.3V) |
| 17 | NMI | — | Connecting to power supply |
| 18 | AMUTE | — | Not used (fixed at "L") |
| 19 | PWR-DWN | O | Power down detect signal output to the LA5620 (IC570) |
| 20 | DQSY | I | Digital in U-bit CD format subcode Q sync (SCOR) input from theCXD2652SAR (IC121) |
| 21 | STB | I | Stand-by signal input terminal Not used (fixed at “L”) |
| 22 | DA-RST | I | D/A converter reset signal input terminal Not used (fixed at “L”) |
| 23 | XINT | I | Interrupt status input from the CXD2652AR (IC121) |
| 24 | DA-EN | O | D/A converter enable signal output to the AK4520 (IC201) |
| 25 | AD-EN | O | A/D converter enable signal output to the AK4520 (IC201) |
| 26 | MEC-BUSY | O | Mecha-busy signal output to the master control (IC601) |
| 27 | FLCS | O | Display clear signal output terminal Not used (fixed at “L”) |
| 28 | FLCLK | O | Display data clock signal output terminal Not used (fixed at “L”) |
| 29 | — | — | Not used (fixed at “L”) |
| 30 | FLDATA | O | Display data signal output terminal Not used (fixed at “L”) |
| 31 | TXD | O | MD control data signal output to the master control (IC601) |
| 32 | RXD | I | MD control data signal input to the master control (IC601) |
| 33 | CLK | I | MD control data clock signal input to the master control (IC601) |
| 34 | MAS-BUSY | I | Master-busy signal input from the master control (IC601) |
| 35 | SWDT | O | Writing data signal output to the CXD2652AR (IC121) |
| 36 | SRDT | I | Reading data signal input from the CXD2652AR (IC121) |
| 37 | SCLK | O | Serial clock signal output to the CXD2652AR (IC121) |
| 38 | XLAT | O | Serial latch signal output to the CXD2652AR (IC121) |
| 39 | — | O | Clock signal output terminal Not used (fixed at “L”) |
| 40 | DIG-RST | O | Reset signal output enable signal output to the CXD2652AR (IC121) |
| 41 | SENS | I | Status (SENSE) input from the CXD2652AR (IC121) |
| 42 | SCTX | O | Recording data output enable signal output to the CXD2652AR (IC121) |
| 43 | XINT | O | Not used (fixed at “L”) |
| 44 | WRPWR | O | Laser power selection signal output to the CXD2652AR (IC121) |
| 45 | MNT3 | I | Monitor 3 signal input from the CXD2652AR (IC121) |
| 46 | MNT2 | I | Monitor 2 signal input from the CXD2652AR (IC121) |
| 47 | MNT1 | I | Track jump detection signal input from the CXD2652AR (IC121) |
| 48 | MNTO | I | Focus OK signal input from the CXD2652AR (IC121) |
| 49 | LDON | O | Laser diode ON signal output terminal |
| 50 | MOD | O | HF module ON signal output terminal |

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 51 | LDIN | O | MD loading-in signal output to LB1830M (IC153) |
| 52 | LDOUT | O | MD loading-out signal output to LAB1830M (IC153) |
| 53 | LD-LOW | O | Loading motor voltage control signal output to the loading motor driver |
| 54 | PROTECT | I | MD PROTECT switch (S683) detect signal input terminal |
| 55 | REFLECT | I | MD REFLECT switch (S682) detect signal input terminal |
| 56 | PACK-IN | I | Not used |
| 57 | PACK-OUT | I | MD PACK OUT switch (S686) detect signal input terminal |
| 58 | CHUCK-IN | I | MD CHUCKING IN switch (S685) detect signal input terminal |
| 59 | LIMIT-IN | I | MD LIMIT IN switch (S681) detect signal input terminal |
| 60 | REC. P | I | MD REC POSITION switch (S688) detect signal input terminal |
| 61 | PB. P | I | MD PB POSITION switch (S687) detect signal input terminal |
| 62 | +5V | — | Power supply (+5V) |
| 63 | — | — | Not used (fixed at “L”) |
| 64 | GND | — | Ground terminal |
| 65 to 72 | — | — | Connect terminal 65 to 72 Not used (fixed at “L”) |
| 73 to 78 | — | — | Not used (fixed at “L”) |
| 79 | SDA | I/O | Tow-way data bus for the EEPROM (IC171) |
| 80 | SCL | O | Clock signal output to the EEPROM (IC171) |
| 81, 82 | — | — | Not used (fixed at “L”) |
| 83 | POWER | — | Conenct terminal 83 to 85 Not used (fixed at “L”) |
| 84, 85 | — | — | |
| 86, 87 | — | — | Not used (fixed at “L”) |
| 88 to 90 | — | — | Connect terminal 88 to 90 Not used (fixed at “L”) |
| 91 to 93 | KEY0, KEY1, KEY2 | — | Connect terminal 91 to 93 Not used (fixed at “H”) |
| 94 | — | — | Not used (fixed at “L”) |
| 95 | SOURCE | — | Not used (fixed at “L”) |
| 96 | AVSS | — | Ground terminal |
| 97 | — | — | Not used (fixed at “L”) |
| 98 | VREF5V | — | Power supply (+5V) |
| 99 | 3.3V | — | Power supply (+3.3V) |
| 100 | — | — | Not used (fixed at “L”) |

• **IC601 μPD78078GF-062-3BA (MASTER CONTROL) (MAIN BOARD (1/3))**

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 to 3 | VER | I | Destination setting terminal |
| 4 | VER | I | Destination setting terminal Not used (open) |
| 5 to 7 | (NC) | — | Not used |
| 8 | — | — | Not used (open) |
| 9 | IC | — | Connecting to ground |
| 10 | X2 | O | Main system clock output terminal (5 MHz) |
| 11 | X1 | I | Main system clock input terminal (5 MHz) |
| 12 | VDD | — | Power supply terminal (+5V) |
| 13 | XT2 | O | Sub system clock output terminal (32 kHz) |
| 14 | XT1 | I | Sub system clock input terminal (32 kHz) |
| 15 | $\overline{\text{RESET}}$ | I | System reset signal input from the reset signal generator (IC602) |
| 16 | AU-BUS IN | I | AU-BUS signal input terminal |
| 17 | AU-BUS OUT | O | AU-BUS signal output terminal |
| 18 | ENC/A | I | Encorder volume signal A input from the master volume (S901) |
| 19 | ENC/B | I | Encoder volume signal B input from the master volume (S901) |
| 20 | RDS/CLK | I | RDS clock signal input from the RDS demodulator (IC1500) |
| 21 | RDS/DATA | I | RDS data signal input from the RDS demodulator (IC1500) |
| 22 | SCOR (BD) | I | Sub-code sync S0, S1 detect signal input from the digital signal processor (IC103) |
| 23 | AVDD | — | Power supply terminal (+5V) (for A/D converter) |
| 24 | AVREF0 | — | Reference voltage input terminal (+5V) (for A/D converter) |
| 25 | KEY0 | I | Key input terminal (A/D input) POWER key (S902) input |
| 26 | KEY 1 | I | Key input terminal (A/D input) ■ (CD), ▶II (CD), ⏏ (CD), ■ (MD), ▶II (MD), ⏏ (MD) keys (S903 to S908) input |
| 27 | KEY 2 | I | Key input terminal (A/D input) FUNCTION, ▶▶ ▶▶I +, TUNER/BAND, I◀◀ ◀◀ –, ● REC, CD-MD SYNC, REPEAT STEREO/MONO, PLAY MODE TUNING MODE (S909 to S916) input |
| 28 to 30 | — | — | Not used |
| 31 | RTS (TO MD. CTS) MASTER BUSY | O | Master-busy signal output to the MD system control (IC316) |
| 32 | MD-POWER | O | MD power on/off signal output to the MD power regulator (IC570) |
| 33 | AVSS | — | Ground terminal (for A/D converter) |
| 34 | $\overline{\text{POWER ON}}$ | I | System power on signal input terminal |
| 35 | MD OEM/REST | O | MD reset signal output terminal |
| 36 | AVREF1 | I | Reference voltage input terminal (+5V) (for A/D converter) |
| 37 | RXD (TO MD. TXD) RXD | I | MD control data signal input from the MD system control (IC316) |
| 38 | TXD (TO MD. RXD) TXD | O | MD control data signal output to the MD system control (IC316) |
| 39 | MD-CLK | O | MD control data clock signal output to the MD system control (IC316) |
| 40 | VSS | — | Ground terminal |
| 41 | CTS (TO MD. RTS) MECHA BUSY | I | Mecha-busy signal input from the MD system control (IC316) |
| 42 | FL/DRIV DATA | O | Display data signal output to the fluorescent indicator drive (IC901) |
| 43 | FL/DRIV CLOCK | O | Display data clock signal output to the fluorescent indicator drive (IC901) |
| 44 | FL/DRIV $\overline{\text{CS}}$ | O | Display clear signal output to the fluorescent indicator drive (IC901) “L”: data output |
| 45 | FL/DRIVE RESET | O | Display reset signal output to the fluorescent indicator drive (IC901) “L”: reset |
| 46 | BD SUBQ | I | Sub-code Q data signal input from the CXD2507AQ (IC103) |
| 47 | (NC) | — | Not used (open) |

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 48 | BD SQCLK | O | Sub-code Q data reading clock signal output to the CXD2507AQ (IC103) |
| 49 | BD CLOCK | O | Serial data clock signal output to the CXD2507AQ (IC103) |
| 50 | BD DATA | O | Serial data output to the CXD2507AQ (IC103) |
| 51 | XLT | O | Serial data latch pulse signal output to the CXD2507AQ (IC103) |
| 52 | PRGL (DF. LAT) | O | Serial data latch pulse signal output to the PCM1710U (IC104) |
| 53 | SENCE | I | Internal status (SENSE) signal input from the CXD2507AQ (IC103) |
| 54 | ADJ | I | Test mode input terminal "H': normal (fixed at "H" in this set) |
| 55 | IN-SW | I | Disc tray close complete signal input terminal "L": Completed |
| 56 | OUT-SW | I | Disc tray open complete signal input terminal "L" Completed |
| 57 | LOAD-OUT | O | Disc tray loading out signal output to the motor driver (IC801) |
| 58 | LOAD-IN | O | Disc tray loading in signal output to the motor driver (IC801) |
| 59 | FOCUS-SW | O | Focus gain selection switch signal output terminal "L": normal "H": down |
| 60 | BD-REST | O | BD block reset signal output terminal "L": reset |
| 61 | CD-POWER | O | CD power on/off signal output to the CD power regulator (Q561, 562) |
| 62 | ST-POWER | O | ST power on/off signal output terminal Not used (open) |
| 63 | D. IN. SELECT | O | Optical/CD select signal output terminal "H": optical "L": CD |
| 64, 65 | — | — | Not used |
| 66 | LED-CD. DISC | O | CD INDICATOR LED (D908) drive signal output terminal |
| 67 | LED-MD. DISC | O | MD INDICATOR LED (D905) drive signal output terminal |
| 68 | LED-MD. REC | O | ● LED (D904) drive signal output terminal |
| 69 | LED-CD. PAUSE | O | ❚❚ (CD) LED (D907) drive signal output terminal |
| 70 | LED-CD. PLAY | O | ► (CD) LED (D906) drive signal output terminal |
| 71 | VSS | — | Ground terminal |
| 72 | LED-MD. PAUSE | O | ❚❚ (MD) LED (D903) drive signal output terminal |
| 73 | LED-MD. PLAY | O | ► (MD) LED (D902) drive signal output terminal |
| 74 | DBFB | O | DBFB on/off signal output terminal "L": on |
| 75 | RECOUT. MUTE | O | Rec mute (tape) signal output terminal "L": mute |
| 76 | MUTE | O | Mute signal output terminal |
| 77 | ATT/6DB | O | Tape input level attenuate signal output terminal |
| 78 | SOUND/IC DATA | O | Graphic equalizer data signal output to the M62428FP (IC701) |
| 79 | SOUND/IC CLOCK | O | Graphic equalizer data clock signal output to the M62428FP (IC701) |
| 80 | SOUND/IC LAT | O | Graphic equalizer data latch pulse signal output to the M62428FP (IC701) |
| 81 | (GND) | — | Ground terminal |
| 82 | ST STEREO | I | Stereo detection signal input from the tuner |
| 83 | ST TUNED | I | Tuned detection signal input from the tuner |
| 84 | ST DATA-IN | I | Data signal input from the tuner |
| 85 | ST DATA-OUT | O | Data signal output to the tuner |
| 86 | ST CLOCK | O | Data transfer clock signal output to the tuner |
| 87 | ST CE | O | Chip enable signal output to the tuner |
| 88 | ST MUTE | O | Mute signal output to the tuner |
| 89 | FM/AM SELECT | O | FM/AM select signal output Not used (open) |
| 90 | SIRCUS | I | Remote control signal input from the remote control receiver (IC902) |
| 91 | — | — | Not used (open) |
| 92 | — | — | Connecting to ground |
| 93 | FAN SPEED | O | Fan speed control signal output terminal Not used (open) |
| 94 | FAN STOP | O | Fan on/off signal output terminal Not used (open) |
| 95 to 99 | — | — | Connecting to ground |
| 100 | BACKUP | I | System reset signal input from the reset signal generator (IC602) |

# SECTION 8
# EXPLODED VIEWS

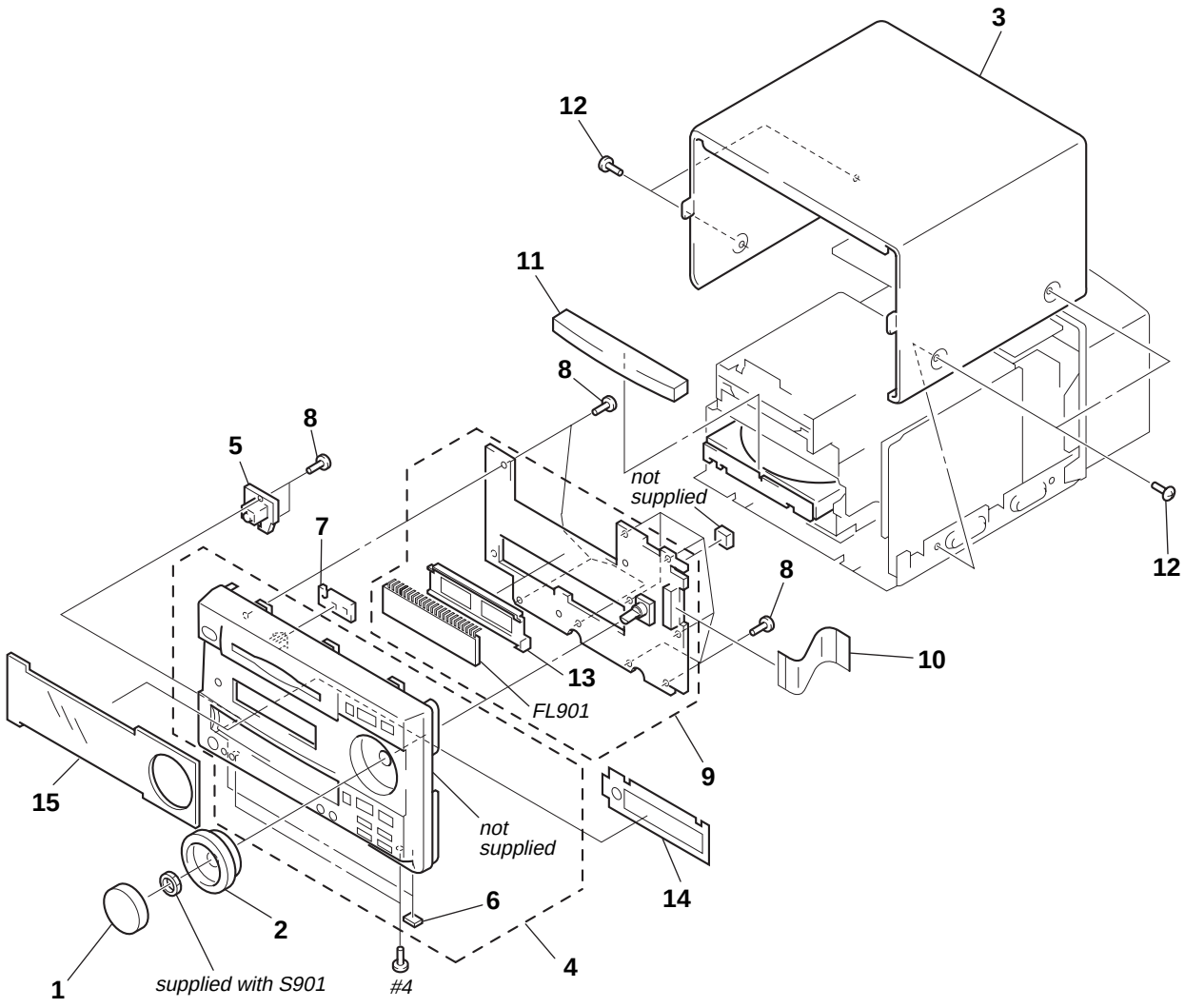
NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- Abbreviation
  CND : Canadian model
  EE : East European model
  HK : Hong Kong model
  SP : Singapore model
  MY : Malaysia model
  AR : Argentine model
  AUS : Australian model
  JE : Tourist model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

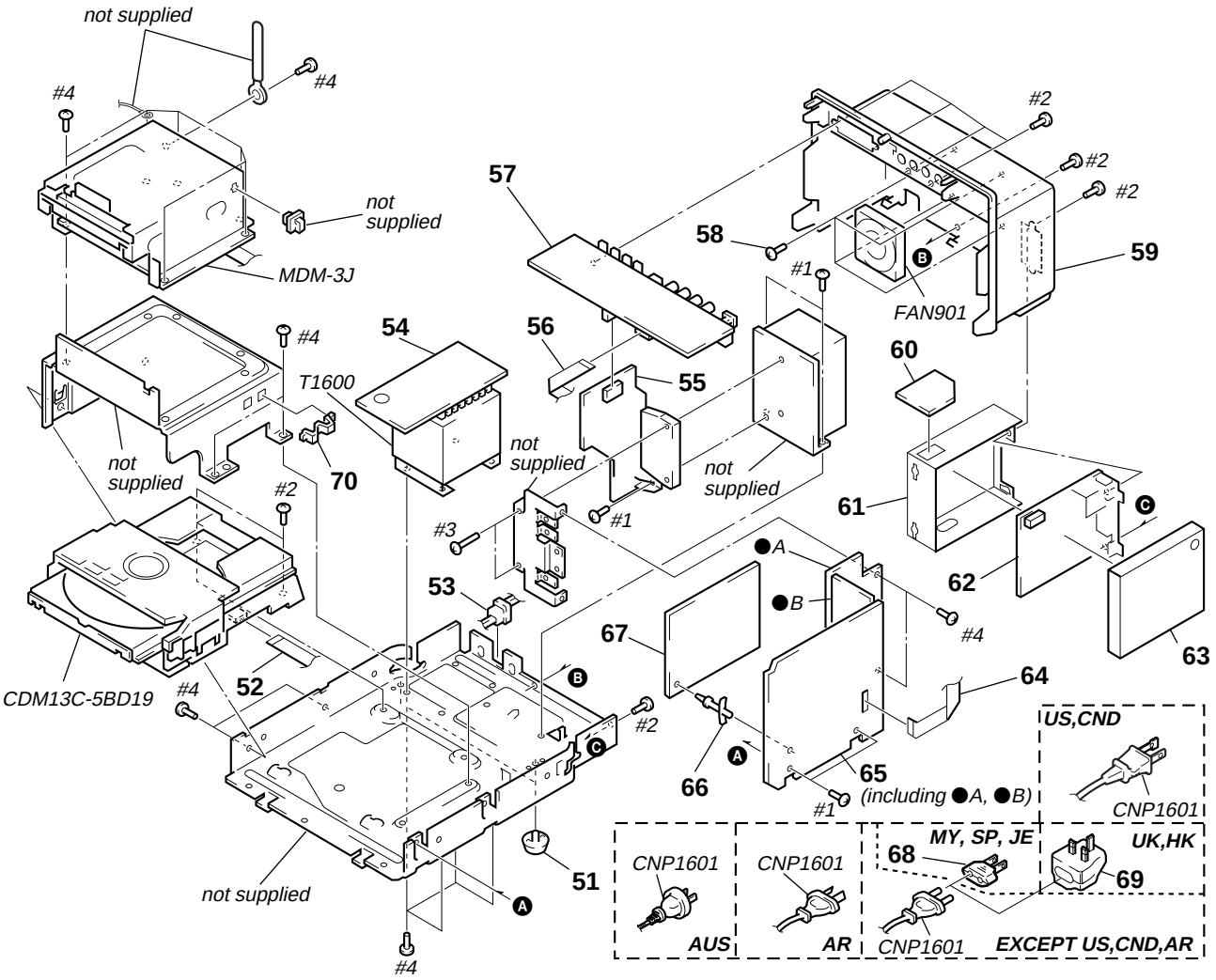
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

## 8-1. FRONT PANEL SECTION




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 4-210-901-01 | KNOB (VOL) | |
| 2 | 4-210-903-01 | ORNAMENT (VOL) | |
| * 3 | 4-993-842-01 | CASE | |
| 4 | X-4950-225-1 | PANEL ASSY, FRONT | |
| * 5 | 1-671-020-21 | HP BOARD | |
| * 6 | 4-930-336-71 | FOOT (FELT) | |
| * 7 | 1-670-745-21 | MD LED BOARD | |
| 8 | 4-951-620-01 | SCREW (2.6X8), +BVTP | |
| * 9 | A-4417-317-A | PANEL BOARD, COMPLETE | |
| 10 | 1-782-793-11 | WIRE (FLAT TYPE) (23 CORE) | |
| 11 | 4-210-902-01 | PANEL, LOADING | |
| 12 | 3-363-099-11 | SCREW (CASE 3 TP2) | |
| * 13 | 4-993-866-21 | HOLDER (FL) | |
| 14 | 4-212-098-01 | FILTER | |
| 15 | 4-210-890-11 | WINDOW (FL)(AEP,UK,EE) | |
| 15 | 4-210-890-21 | WINDOW (FL)(EXCEPT AEP,UK,EE) | |
| FL901 | 1-517-687-11 | INDICATOR TUBE, FLUORESCENT | |

## 8-2. CHASSIS SECTION

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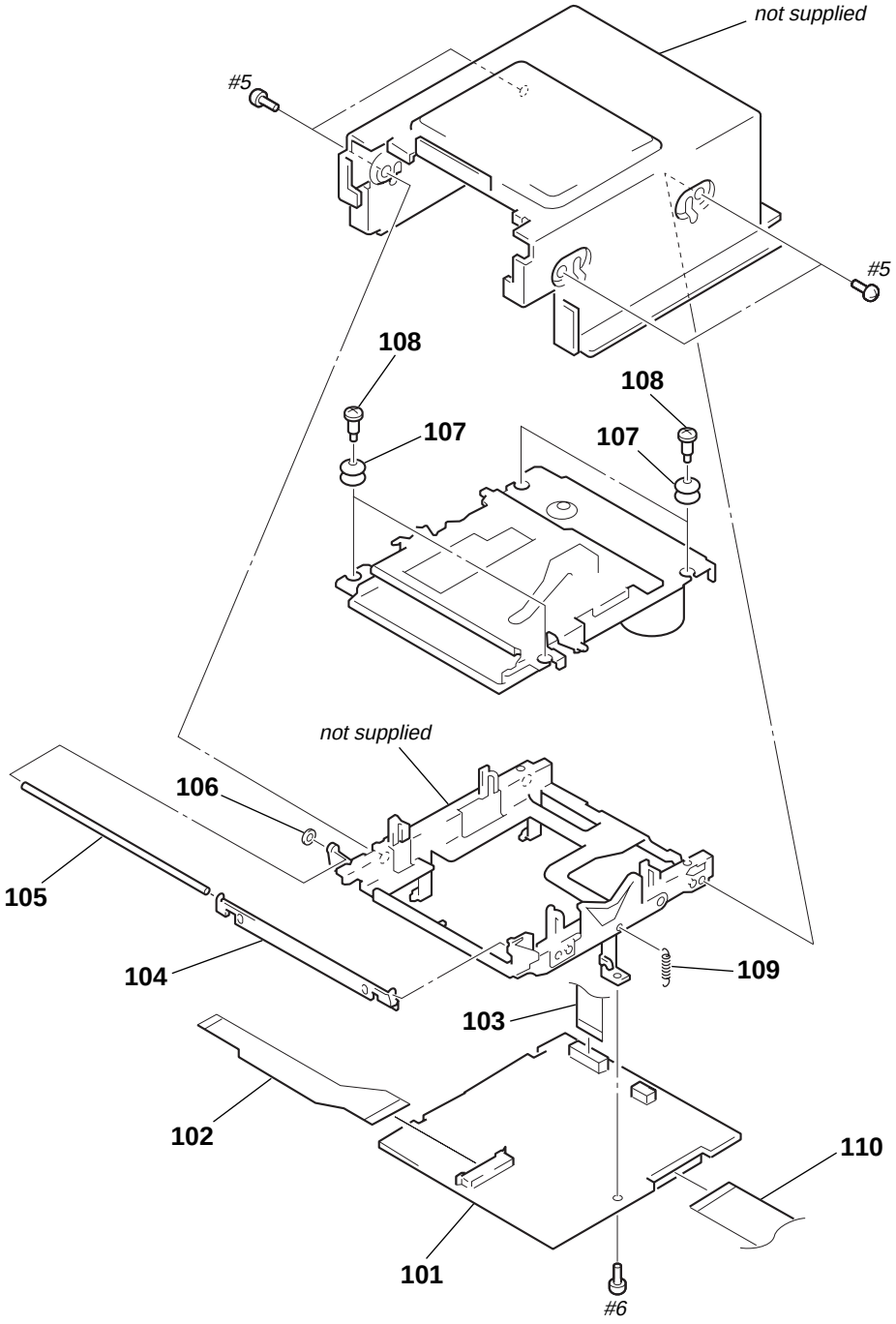
|---|---|

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | 4-993-867-01 | FOOT (8) | |
| 52 | 1-782-990-11 | WIRE (FLAT TYPE) (19 CORE) | |
| 53 | 3-703-244-00 | BUSHING (2104), CORD | |
| * 54 | 1-666-904-11 | TRANS BOARD | |
| * 55 | A-4417-126-A | POWER AMP BOARD, COMPLETE (AEP,UK,EE) | |
| * 55 | A-4417-130-A | POWER AMP BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS) | |
| * 55 | A-4417-134-A | POWER AMP BOARD, COMPLETE (US,CND) | |
| 56 | 1-782-991-11 | WIRE (FLAT TYPE) (15 CORE) | |
| * 57 | A-4414-823-A | JACK BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS) | |
| * 57 | A-4414-826-A | JACK BOARD, COMPLETE (US,CND) | |
| * 57 | A-4414-830-A | JACK BOARD, COMPLETE (AEP,UK,EE) | |
| 58 | 4-985-672-01 | SCREW (+PTPWHM2.6), FLOATING | |
| * 59 | 4-993-849-52 | PANEL, BACK (AEP,UK,EE) | |
| * 59 | 4-993-849-61 | PANEL, BACK (MY,SP,JE,HK,AR,AUS) | |
| * 59 | 4-993-849-71 | PANEL, BACK (US,CND) | |
| * 60 | 1-666-905-11 | ST TERMINAL BOARD | |
| * 61 | 4-984-203-21 | PLATE (ST-A), SHIELD | |
| 62 | 1-233-544-21 | ENCAPSULATED COMPONENT (US,CND) | |
| 62 | 1-233-546-21 | ENCAPSULATED COMPONENT (MY,SP,JE,HK,AR,AUS) | |
| 62 | 1-693-387-21 | TUNER (FM/MW/LW)(AEP,UK,EE) | |

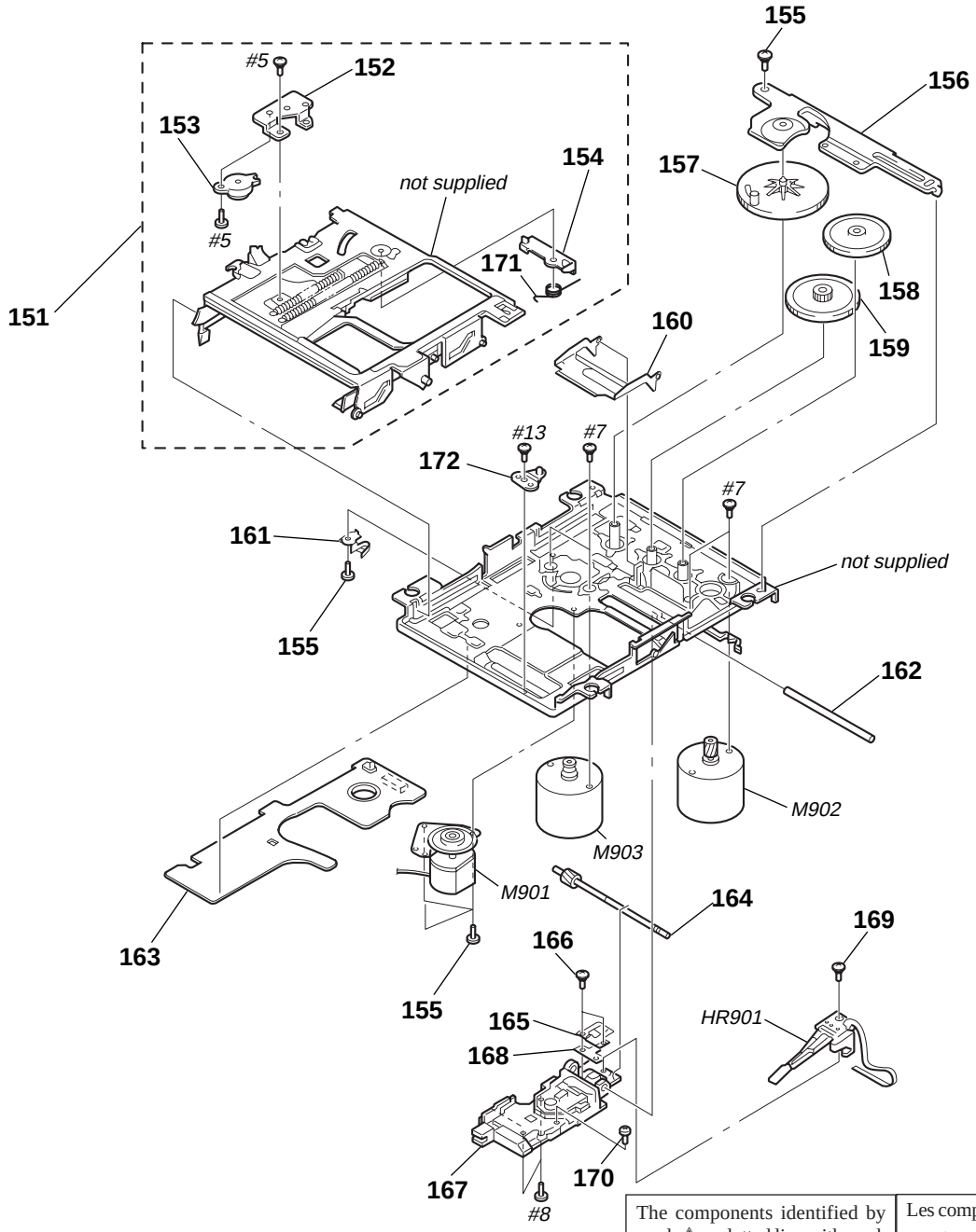
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 63 | 4-984-204-11 | PLATE (ST-B), SHIELD | |
| 64 | 1-783-213-11 | WIRE (FLAT TYPE) (15 CORE) | |
| * 65 | A-4417-124-A | MAIN BOARD, COMPLETE (AEP,UK,EE) | |
| * 65 | A-4417-128-A | MAIN BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS) | |
| * 65 | A-4417-132-A | MAIN BOARD, COMPLETE (US,CND) | |
| * 66 | 4-924-098-91 | HOLDER, PC BOARD | |
| * 67 | A-4414-818-A | AUDIO BOARD, COMPLETE (AEP,UK,EE) | |
| * 67 | A-4414-821-A | AUDIO BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS) | |
| * 67 | A-4414-824-A | AUDIO BOARD, COMPLETE (US,CND) | |
| ⚠68 | 1-569-008-21 | ADAPTOR, CONVERSION 2P (MY,SP,JE) | |
| ⚠69 | 1-770-019-11 | ADAPTOR, CONVERSION PLUG 3P (UK,HK) | |
| * 70 | 4-988-533-01 | HOLDER, PWB | |
| ⚠CNP1601 | 1-696-847-11 | CORD, POWER (AUS) | |
| ⚠CNP1601 | 1-769-744-11 | CORD, POWER (EXCEPT US,CND,AR,AUS) | |
| ⚠CNP1601 | 1-783-532-11 | CORD, POWER (US,CND) | |
| ⚠CNP1601 | 1-783-941-11 | CORD, POWER (AR) | |
| FAN901 | 1-698-997-11 | FAN, D.C. | |
| ⚠T1600 | 1-431-498-11 | TRANSFORMER, POWER (MY,SP,JE,HK,AR,AUS) | |
| ⚠T1600 | 1-431-988-11 | TRANSFORMER, POWER (AEP,UK,EE) | |
| ⚠T1600 | 1-431-989-11 | TRANSFORMER, POWER (US,CND) | |

## 8-3. MD MECHANISM DECK SECTION-1 (MDM-3J)




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 101 | A-4699-808-A | BD (MD) BOARD, COMPLETE | |
| 102 | 1-660-966-11 | OP RELAY FLEXIBLE BOARD | |
| 103 | 1-782-683-11 | WIRE (FLAT TYPE) (14 CORE) | |
| 104 | X-4949-900-1 | SHUTTER ASSY | |
| 105 | 4-997-456-02 | SHAFT (SHUTTER)(A) | |
| 106 | 4-986-959-01 | WASHER, STOPPER | |
| 107 | 4-987-327-01 | INSULATOR | |
| 108 | 4-628-167-01 | SCREW, STEP | |
| 109 | 4-997-962-01 | SPRING (O/C), TENSION | |
| 110 | 1-783-113-11 | WIRE (FLAT TYPE) (25 CORE) | |

## 8-4. MD MECHANISM DECK SECTION-2 (MDM-3J)

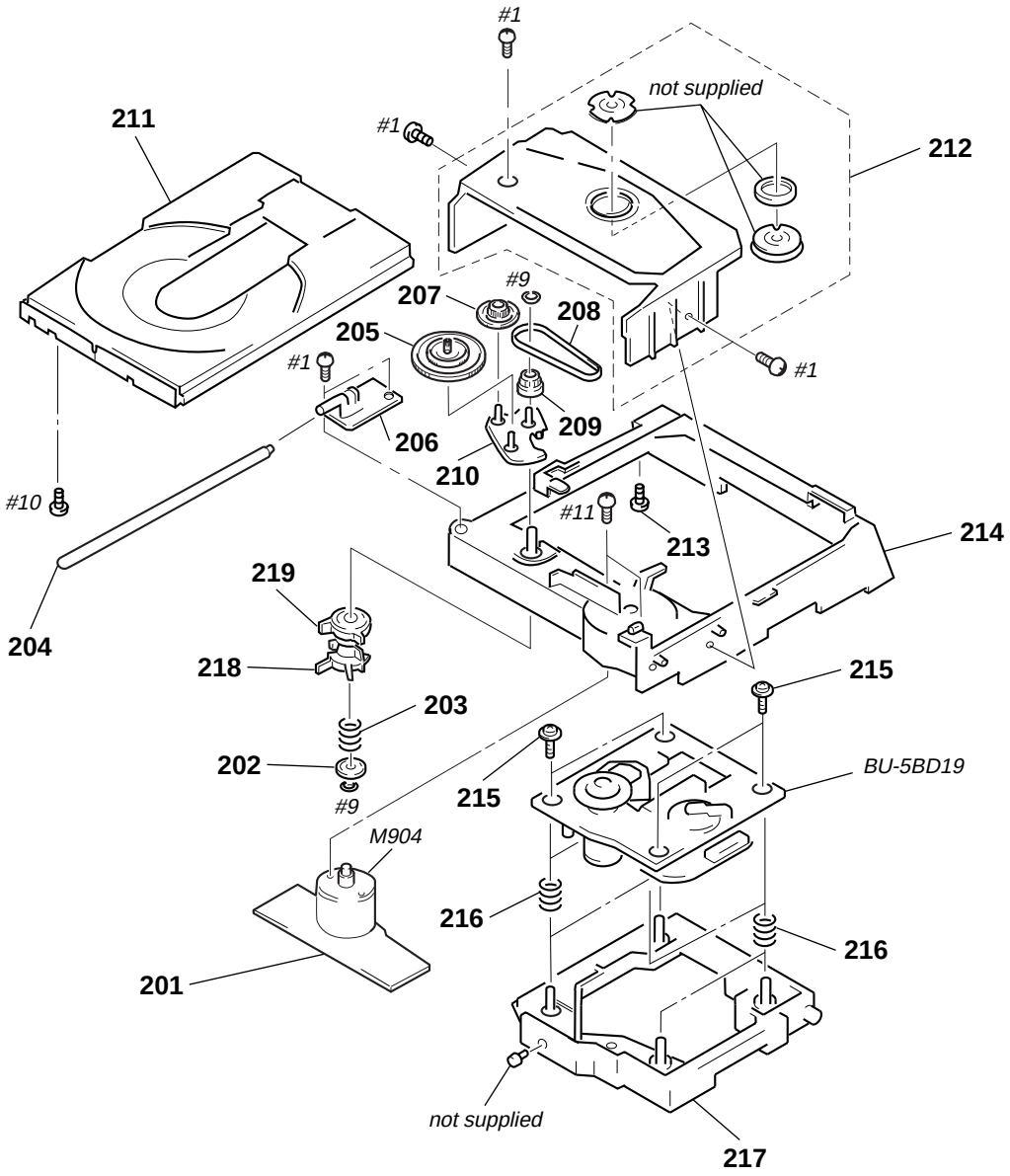



| The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.<br>Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.<br>Ne les remplacer que par une piéce portant le numéro spécifié. |
|---|---|

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 151 | A-4672-138-A | SLIDER COMPLETE ASSY | |
| * 152 | 4-983-439-01 | BRACKET (DAMPER) | |
| 153 | 3-953-235-01 | DAMPER, OIL | |
| * 154 | 4-983-437-01 | SLIDER (CAM) | |
| 155 | 3-342-375-11 | SCREW (M1.7X1.4), SPECIAL | |
| 156 | 4-979-890-11 | RETAINER (GEAR) | |
| 157 | 4-979-898-01 | GEAR (LB) | |
| 158 | 4-979-899-01 | GEAR (LC) | |
| 159 | 4-979-897-01 | GEAR (LA) | |
| 160 | 4-979-885-01 | LEVER (HEAD UP) | |
| 161 | 4-979-906-11 | SPRING (LEAD SCREW) | |
| 162 | 4-984-556-01 | SHAFT (MAIN SHAFT) | |
| * 163 | 1-667-719-11 | SW BOARD | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 164 | A-3304-200-A | SCREW ASSY, LEAD | |
| 165 | 4-963-914-02 | RACK (INSERTER) | |
| 166 | 3-366-890-11 | SCREW (M1.4) | |
| ⚠ 167 | 8-583-028-02 | OPTICAL PICK-UP KMS-260A/J1N (for MD) | |
| 168 | 4-987-061-01 | SPACER (RACK) | |
| 169 | 4-988-560-01 | SCREW (+P 1.7X6) | |
| 170 | 4-955-841-11 | SCREW | |
| 171 | 4-979-914-01 | SPRING (CLV), TORSION | |
| * 172 | 4-983-511-02 | PIN (OUTSERT) | |
| HR901 | 1-500-396-11 | HEAD, OVER LIGHT (RF325-74A) | |
| M901 | A-4672-135-A | MOTOR ASSY, SPINDLE | |
| M902 | A-4672-133-A | MOTOR ASSY, SLED | |
| M903 | A-4672-134-A | MOTOR ASSY, LOADING (MD) | |

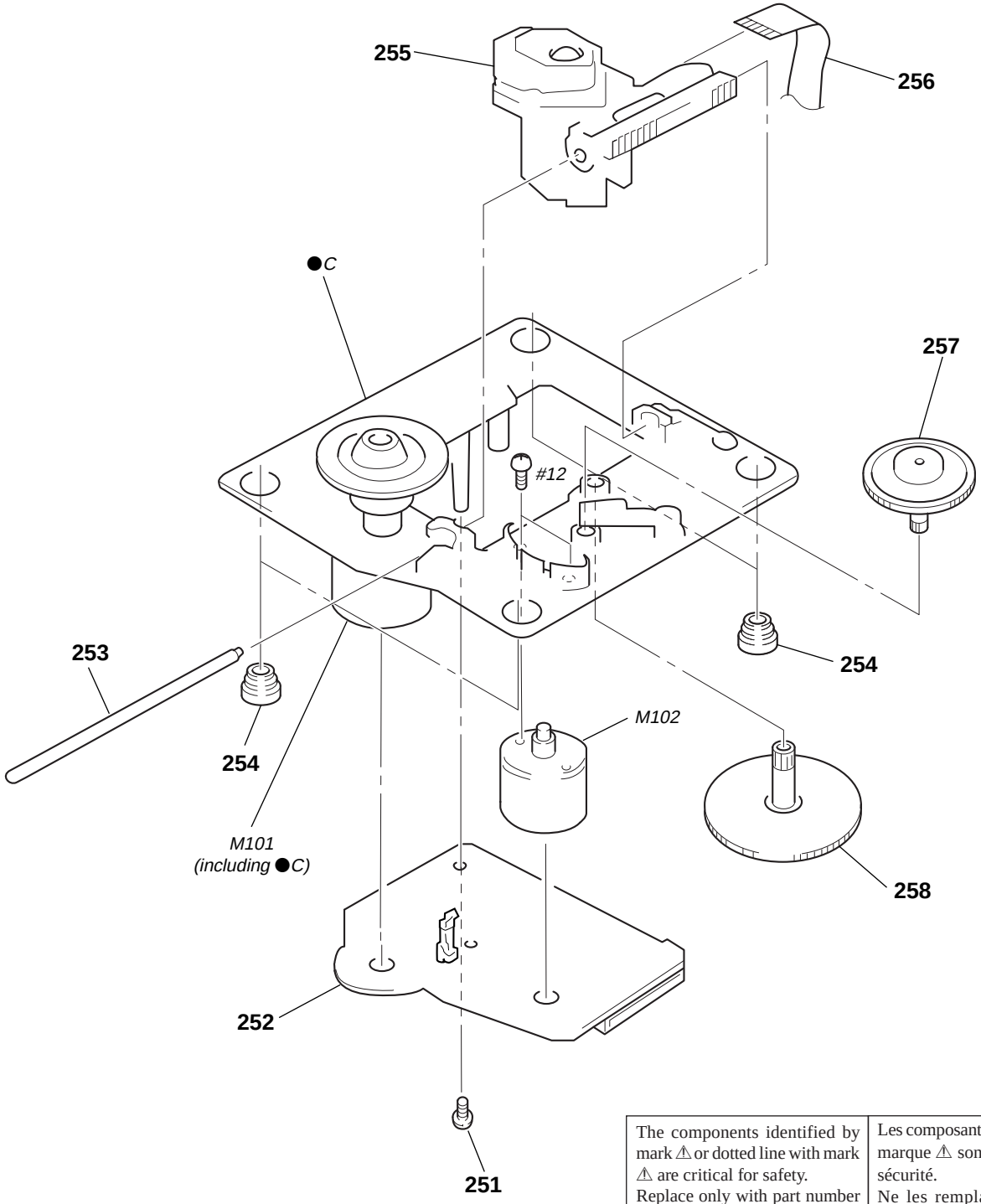
## 8-5. CD MECHANISM DECK SECTION-1 (CDM13C-5BD19)




| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 201 | 1-634-461-11 | LOADING BOARD | |
| 202 | 4-927-654-01 | WASHER (LIMITER) | |
| 203 | 3-659-338-00 | SPRING, COMPRESSION | |
| 204 | 4-929-764-01 | SHAFT (TABLE GUIDE) | |
| 205 | 4-927-620-01 | GEAR (P) | |
| 206 | 4-944-006-11 | BEARING | |
| 207 | 4-927-628-01 | GEAR (C) | |
| 208 | 4-927-649-01 | BELT | |
| 209 | 4-929-724-01 | PULLEY (B) | |
| 210 | X-4947-265-1 | ARM ASSY, SWING | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 211 | 4-944-012-01 | TABLE, DISC | |
| 212 | A-4604-752-A | HOLDER (MG) ASSY | |
| * 213 | 4-917-583-21 | BRACKET, YOKE | |
| * 214 | X-4946-208-1 | CHASSIS (MD) ASSY | |
| 215 | 4-933-134-01 | SCREW (+PTPWH M2.6X6) | |
| 216 | 4-958-593-01 | SPRING (BU), COMPRESSION | |
| 217 | 4-929-747-01 | HOLDER (BU) | |
| 218 | 4-929-727-01 | CAM (A) | |
| 219 | 4-929-729-01 | CAM (B) | |
| M904 | A-4608-362-A | MOTOR (L) ASSY (LOADING) (CD) | |

## 8-6. CD MECHANISM DECK SECTION-2 (BU-5BD19)




| The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié. |
|---|---|

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 251 | 4-951-620-01 | SCREW (2.6X8), +BVTP | |
| * 252 | A-4673-402-A | BD (CD) BOARD, COMPLETE | |
| 253 | 4-917-565-01 | SHAFT, SLED | |
| 254 | 4-951-940-01 | INSULATOR (BU) | |
| ⚠255 | 8-848-379-31 | OPTICAL PICK-UP KSS-213B/K-N (for CD) | |
| 256 | 1-769-069-11 | WIRE (FLAT TYPE) (16 CORE) | |
| 257 | 4-917-567-01 | GEAR (M) | |
| 258 | 4-917-564-01 | GEAR (P), FLATNESS | |
| M101 | X-4917-523-4 | BASE (OUTSART) ASSY (SPINDLE) | |
| M102 | X-4917-504-1 | MOTOR ASSY (SLED) | |

**AUDIO**

# SECTION 9
# ELECTRICAL PARTS LIST

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB..., uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  CND : Canadian model
  EE : East European model
  MY : Malaysia model
  SP : Singapore model
  JE : Tourist model
  HK : Hong Kong model
  AR : Argentine model
  AUS : Australian model

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | A-4414-818-A | AUDIO BOARD, COMPLETE (AEP,UK,EE) | | | |
| | | ********** | | | |
| * | A-4414-821-A | AUDIO BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | | | | (MY,SP,JE,HK,AR,AUS) |
| * | A-4414-824-A | AUDIO BOARD, COMPLETE (US,CND) | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C701 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C702 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C703 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C704 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C705 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C706 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C707 | 1-124-464-11 | ELECT | 0.22uF | 20% | 50V |
| C708 | 1-130-473-00 | MYLAR | 0.0015uF | 5% | 50V |
| C709 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C712 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C713 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C714 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C715 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C716 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C717 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C718 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C719 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C720 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C731 | 1-130-475-00 | MYLAR | 0.0022uF | 5% | 50V |
| C743 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C751 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C752 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C753 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C754 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C755 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C756 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C757 | 1-124-464-11 | ELECT | 0.22uF | 20% | 50V |
| C758 | 1-130-473-00 | MYLAR | 0.0015uF | 5% | 50V |
| C759 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C762 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C763 | 1-130-477-00 | MYLAR | 0.0033uF | 5% | 50V |
| C764 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C765 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C766 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C767 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C768 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C769 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C781 | 1-130-475-00 | MYLAR | 0.0022uF | 5% | 50V |
| C1501 | 1-124-589-11 | ELECT | 47uF | 20% | 16V (AEP,UK,EE) |
| C1502 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V (AEP,UK,EE) |
| C1503 | 1-126-157-11 | ELECT | 10uF | 20% | 16V (AEP,UK,EE) |
| C1504 | 1-162-291-31 | CERAMIC | 560PF | 10% | 50V (AEP,UK,EE) |
| C1505 | 1-126-157-11 | ELECT | 10uF | 20% | 16V (AEP,UK,EE) |
| C1506 | 1-124-257-00 | ELECT | 2.2uF | 20% | 50V (AEP,UK,EE) |
| C1507 | 1-102-518-11 | CERAMIC | 33PF | 5% | 50V (AEP,UK,EE) |
| C1508 | 1-162-288-31 | CERAMIC | 330PF | 10% | 50V (AEP,UK,EE) |
| C1509 | 1-102-518-11 | CERAMIC | 33PF | 5% | 50V (AEP,UK,EE) |
| C1510 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V (AEP,UK,EE) |
| C1511 | 1-162-291-31 | CERAMIC | 560PF | 10% | 50V (AEP,UK,EE) |
| C1512 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V (AEP,UK,EE) |
| C1513 | 1-162-301-11 | CERAMIC | 0.0015uF | 20% | 16V (AEP,UK,EE) |
| C1515 | 1-162-600-11 | CERAMIC | 0.0047uF | 20% | 16V (AEP,UK,EE) |
| | | < CONNECTOR > | | | |
| CN701 | 1-779-819-11 | CONNECTOR, BOARD TO BOARD 14P | | | |
| CN702 | 1-779-819-11 | CONNECTOR, BOARD TO BOARD 14P | | | |
| | | < DIODE > | | | |
| D701 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D1501 | 8-719-911-19 | DIODE 1SS119-25 (AEP,UK,EE) | | | |
| | | < IC > | | | |
| IC701 | 8-759-439-30 | IC M62428FP | | | |
| IC702 | 8-759-634-51 | IC M5218AP | | | |
| IC1500 | 8-759-450-87 | IC BU1922F (AEP,UK,EE) | | | |
| IC1501 | 8-759-636-55 | IC M5218AFP (AEP,UK,EE) | | | |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < TRANSISTOR > | | | | |
| Q701 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q702 | 8-729-141-30 | TRANSISTOR | 2SC3623A-LK | | | |
| Q703 | 8-729-422-57 | TRANSISTOR | UN4111 | | | |
| Q751 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q752 | 8-729-141-30 | TRANSISTOR | 2SC3623A-LK | | | |
| | | < RESISTOR > | | | | |
| R702 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R703 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R704 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R705 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W | |
| R706 | 1-247-885-00 | CARBON | 180K | 5% | 1/4W | |
| R707 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R708 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R709 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R710 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W | |
| R712 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R713 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R714 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F |
| R715 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F |
| R716 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F |
| R721 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | F |
| R722 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R731 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | F |
| R732 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R752 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R753 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | |
| R754 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R755 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W | |
| R756 | 1-247-885-00 | CARBON | 180K | 5% | 1/4W | |
| R757 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R758 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R759 | 1-247-895-00 | CARBON | 470K | 5% | 1/4W | |
| R760 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W | |
| R771 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | F |
| R772 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R781 | 1-249-420-11 | CARBON | 1.8K | 5% | 1/4W | F |
| R782 | 1-249-427-11 | CARBON | 6.8K | 5% | 1/4W | F |
| R1501 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W (AEP,UK,EE) | |
| R1502 | 1-249-432-11 | CARBON | 18K | 5% | 1/4W (AEP,UK,EE) | |
| R1503 | 1-249-426-11 | CARBON | 5.6K | 5% | 1/4W (AEP,UK,EE) | |
| R1504 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W (AEP,UK,EE) | |
| R1505 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W (AEP,UK,EE) | |
| R1506 | 1-260-079-11 | CARBON | 22 | 5% | 1/2W (AEP,UK,EE) | |
| R1507 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W (AEP,UK,EE) | F |
| R1508 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W (AEP,UK,EE) | |
| R1509 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W (AEP,UK,EE) | |
| R1510 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W (AEP,UK,EE) | |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < VIBRATOR > | | | | |
| X1501 | 1-579-900-21 | VIBRATOR, CRYSTAL (4.332MHz)(AEP,UK,EE) | | | | |
| ********** | | | | | | |
| | A-4673-402-A | BD (CD) BOARD, COMPLETE | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C101 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C102 | 1-163-275-11 | CERAMIC CHIP | 0.001uF | 5% | 50V | |
| C103 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V | |
| C105 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C106 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V | |
| C107 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V | |
| C108 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C109 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C110 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V | |
| C111 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C112 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C113 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V | |
| C114 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 25V | |
| C115 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C116 | 1-163-016-00 | CERAMIC CHIP | 0.0039uF | 10% | 50V | |
| C117 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 25V | |
| C118 | 1-107-823-11 | CERAMIC CHIP | 0.47uF | 10% | 16V | |
| C119 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C120 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V | |
| C121 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C122 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C123 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C124 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C125 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C126 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C127 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V | |
| C128 | 1-163-135-00 | CERAMIC CHIP | 560PF | 5% | 50V | |
| C129 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C130 | 1-164-336-11 | CERAMIC CHIP | 0.33uF | | 25V | |
| C131 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C132 | 1-163-037-11 | CERAMIC CHIP | 0.022uF | 10% | 25V | |
| C133 | 1-163-145-00 | CERAMIC CHIP | 0.0015uF | 5% | 50V | |
| C134 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V | |
| C135 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V | |
| C136 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 25V | |
| C137 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C139 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V | |
| C140 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V | |
| C141 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C142 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V | |
| C145 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V | |
| C146 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V | |
| C147 | 1-163-275-11 | CERAMIC CHIP | 0.001uF | 5% | 50V | |
| C148 | 1-163-275-11 | CERAMIC CHIP | 0.001uF | 5% | 50V | |
| C149 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V | |
| C153 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V | |
| C154 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V | |

## BD (CD) BD (MD)

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < CONNECTOR > | | | |
| CNU101 | 1-770-014-11 | CONNECTOR, FFC/FPC 16P | | | |
| CNU102 | 1-770-013-11 | CONNECTOR, FFC/FPC 19P | | | |
| | | < IC > | | | |
| IC101 | 8-752-069-56 | IC CXA1782BQ | | | |
| IC102 | 8-759-291-06 | IC BA6397FP-T1 | | | |
| IC103 | 8-752-372-94 | IC CXD2507AQ | | | |
| IC104 | 8-759-185-29 | IC PCM1710U-B | | | |
| | | < TRANSISTOR > | | | |
| Q101 | 8-729-010-08 | TRANSISTOR MSB710-R | | | |
| Q102 | 8-729-424-08 | TRANSISTOR UN2111 | | | |
| Q103 | 8-729-421-22 | TRANSISTOR UN2211 | | | |
| | | < RESISTOR > | | | |
| R102 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| R103 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R104 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R105 | 1-216-093-00 | METAL CHIP | 68K | 5% | 1/10W |
| R106 | 1-216-093-00 | METAL CHIP | 68K | 5% | 1/10W |
| R107 | 1-216-093-00 | METAL CHIP | 68K | 5% | 1/10W |
| R108 | 1-216-093-00 | METAL CHIP | 68K | 5% | 1/10W |
| R109 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R112 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R113 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R114 | 1-216-101-00 | METAL CHIP | 150K | 5% | 1/10W |
| R115 | 1-216-101-00 | METAL CHIP | 150K | 5% | 1/10W |
| R116 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R117 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R118 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R119 | 1-216-089-91 | RES,CHIP | 47K | 5% | 1/10W |
| R120 | 1-216-089-91 | RES,CHIP | 47K | 5% | 1/10W |
| R121 | 1-216-114-00 | RES,CHIP | 510K | 5% | 1/10W |
| R122 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R123 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W |
| R124 | 1-216-091-00 | METAL CHIP | 56K | 5% | 1/10W |
| R125 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R126 | 1-216-063-91 | RES,CHIP | 3.9K | 5% | 1/10W |
| R127 | 1-216-089-91 | RES,CHIP | 47K | 5% | 1/10W |
| R128 | 1-216-105-91 | RES,CHIP | 220K | 5% | 1/10W |
| R129 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R130 | 1-216-079-00 | METAL CHIP | 18K | 5% | 1/10W |
| R131 | 1-216-079-00 | METAL CHIP | 18K | 5% | 1/10W |
| R132 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R133 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R134 | 1-216-065-91 | RES,CHIP | 4.7K | 5% | 1/10W |
| R135 | 1-216-065-91 | RES,CHIP | 4.7K | 5% | 1/10W |
| R136 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R137 | 1-216-065-91 | RES,CHIP | 4.7K | 5% | 1/10W |
| R138 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R139 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W |
| R140 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R141 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R142 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R143 | 1-216-121-91 | RES,CHIP | 1M | 5% | 1/10W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R144 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R145 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R146 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R147 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R148 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R149 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R150 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W |
| R151 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W |
| R152 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W |
| R153 | 1-216-082-00 | RES,CHIP | 24K | 5% | 1/10W |
| R154 | 1-216-065-91 | RES,CHIP | 4.7K | 5% | 1/10W |
| R156 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W |
| R157 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R158 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| | | < VARIABLE RESISTOR > | | | |
| RV101 | 1-223-587-11 | RES, ADJ, CARBON 22K | | | |
| RV102 | 1-223-587-11 | RES, ADJ, CARBON 22K | | | |
| RV103 | 1-223-587-11 | RES, ADJ, CARBON 22K | | | |
| | | < SWITCH > | | | |
| S101 | 1-572-085-11 | SWITCH, LEAF (LIMIT) | | | |
| | | < VIBRATOR > | | | |
| X101 | 1-579-280-11 | VIBRATOR, CRYSTAL (16.9344MHz) | | | |
| ********** | | | | | |
| * | A-4699-808-A | BD (MD) BOARD, COMPLETE | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C101 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C102 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C103 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C104 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C105 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C106 | 1-163-275-11 | CERAMIC CHIP | 0.001uF | 5% | 50V |
| C107 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C108 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C109 | 1-163-037-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C110 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C111 | 1-164-344-11 | CERAMIC CHIP | 0.068uF | 10% | 25V |
| C112 | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 5% | 50V |
| C113 | 1-164-346-11 | CERAMIC CHIP | 1uF | | 16V |
| C115 | 1-164-489-11 | CERAMIC CHIP | 0.22uF | 10% | 16V |
| C116 | 1-163-037-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C117 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C118 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C119 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C121 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C122 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C123 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C124 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C127 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C128 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C129 | 1-107-823-11 | CERAMIC CHIP | 0.47uF | 10% | 16V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C130 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C131 | 1-163-023-00 | CERAMIC CHIP | 0.015uF | 5% | 50V |
| C132 | 1-107-823-11 | CERAMIC CHIP | 0.47uF | 10% | 16V |
| C133 | 1-163-017-00 | CERAMIC CHIP | 0.0047uF | 5% | 50V |
| C134 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C135 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C136 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C139 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C140 | 1-163-099-00 | CERAMIC CHIP | 18PF | 5% | 50V |
| C142 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C143 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C144 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C151 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C152 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C153 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C156 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C158 | 1-163-019-00 | CERAMIC CHIP | 0.0068uF | 10% | 50V |
| C160 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C161 | 1-104-601-11 | ELECT CHIP | 10uF | 20% | 10V |
| C163 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C164 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C167 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C168 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C169 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C171 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C181 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C182 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C183 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C184 | 1-117-970-11 | ELECT CHIP | 22uF | 20% | 10V |
| C185 | 1-164-611-11 | CERAMIC CHIP | 0.001uF | 10% | 500V |
| C188 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C189 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C190 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C191 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C192 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C197 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C201 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C202 | 1-164-695-11 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C203 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C205 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V |
| C206 | 1-115-363-11 | CERAMIC CHIP | 10uF | | 10V |
| C207 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C208 | 1-115-363-11 | CERAMIC CHIP | 10uF | | 10V |
| C209 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C210 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C212 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C213 | 1-115-363-11 | CERAMIC CHIP | 10uF | | 10V |
| C214 | 1-115-363-11 | CERAMIC CHIP | 10uF | | 10V |
| C216 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V |
| C350 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C352 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V |
| C353 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C354 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C355 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C357 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C358 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C359 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C361 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C362 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C363 | 1-163-251-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C401 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C402 | 1-163-021-91 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C2001 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C2002 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C2003 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| C2004 | 1-163-038-91 | CERAMIC CHIP | 0.1uF | | 25V |
| | | < CONNECTOR > | | | |
| CN101 | 1-766-508-11 | CONNECTOR, FFC/FPC (ZIF) 22P | | | |
| CN104 | 1-778-283-11 | CONNECTOR, FFC/FPC 4P | | | |
| CN106 | 1-774-771-11 | CONNECTOR, FFC/FPC 14P | | | |
| CN107 | 1-779-854-11 | CONNECTOR, FFC/FPC 25P | | | |
| | | < DIODE > | | | |
| D101 | 8-719-988-62 | DIODE 1SS355 | | | |
| D181 | 8-719-046-86 | DIODE F1J6TP | | | |
| D183 | 8-719-046-86 | DIODE F1J6TP | | | |
| | | < IC > | | | |
| IC101 | 8-752-080-95 | IC CXA2523AR | | | |
| IC103 | 8-729-903-10 | IC TRANSISTOR FMW1 | | | |
| IC121 | 8-752-384-47 | IC CXD2652AR | | | |
| IC124 | 8-759-536-21 | IC MSM51V4400D-10TSK-FS | | | |
| IC152 | 8-759-430-25 | IC BH6511FS-E2 | | | |
| IC153 | 8-759-481-19 | IC LB1830M-S-TE-L | | | |
| IC171 | 8-759-484-73 | IC BR24C01AF-E2 | | | |
| IC181 | 8-759-481-17 | IC MC74ACT08DTR2 | | | |
| IC192 | 8-759-460-72 | IC BA033FP-E2 | | | |
| IC201 | 8-759-471-38 | IC AK4520A-VF-E2 | | | |
| IC316 | 8-759-568-55 | IC M30610MCA-272FP | | | |
| IC401 | 8-759-242-70 | IC TC7WU04F | | | |
| | | < COIL > | | | |
| L101 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L102 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L103 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L105 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L106 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L121 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L122 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L151 | 1-412-622-51 | INDUCTOR | 10uH | | |
| L152 | 1-412-622-51 | INDUCTOR | 10uH | | |
| L153 | 1-412-039-51 | INDUCTOR CHIP | 100uH | | |
| L154 | 1-412-039-51 | INDUCTOR CHIP | 100uH | | |
| L161 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L162 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L181 | 1-424-675-11 | INDUCTOR | 0uH | | |
| L201 | 1-412-776-11 | INDUCTOR | 1uH | | |
| L301 | 1-414-235-11 | INDUCTOR CHIP | 0uH | | |
| L351 | 1-216-295-91 | SHORT 0 | | | |
| L401 | 1-216-025-91 | RES,CHIP 100 5% 1/10W | | | |
| L1001 | 1-500-445-21 | FERRITE 0uH | | | |

## BD (MD)

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < TRANSISTOR > | | | |
| Q101 | 8-729-028-91 | TRANSISTOR | RT1P441M-TP-1 | | |
| Q102 | 8-729-026-53 | TRANSISTOR | 2SA1576A-T106-QR | | |
| Q103 | 8-729-028-99 | TRANSISTOR | RT1N144M-TP-1 | | |
| Q104 | 8-729-028-99 | TRANSISTOR | RT1N144M-TP-1 | | |
| Q162 | 8-729-101-07 | TRANSISTOR | 2SB798-DL | | |
| Q163 | 8-729-028-91 | TRANSISTOR | RT1P441M-TP-1 | | |
| Q181 | 8-729-018-75 | TRANSISTOR | 2SJ278MY | | |
| Q182 | 8-729-017-65 | TRANSISTOR | 2SK1764KY | | |
| Q350 | 8-729-028-99 | TRANSISTOR | RT1N144M-TP-1 | | |
| | | < RESISTOR > | | | |
| R101 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R103 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R104 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R105 | 1-216-065-91 | RES,CHIP | 4.7K | 5% | 1/10W |
| R106 | 1-216-133-00 | METAL CHIP | 3.3M | 5% | 1/10W |
| R107 | 1-216-113-00 | METAL CHIP | 470K | 5% | 1/10W |
| R110 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R112 | 1-216-089-91 | RES,CHIP | 47K | 5% | 1/10W |
| R113 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R115 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R117 | 1-216-113-00 | METAL CHIP | 470K | 5% | 1/10W |
| R121 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R125 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R128 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W |
| R131 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R132 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R133 | 1-216-117-00 | METAL CHIP | 680K | 5% | 1/10W |
| R134 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R135 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R136 | 1-216-049-91 | RES,CHIP | 1K | 5% | 1/10W |
| R137 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R140 | 1-216-029-00 | METAL CHIP | 150 | 5% | 1/10W |
| R142 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R143 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R144 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R146 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W |
| R147 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R148 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R158 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R159 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R161 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R162 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R163 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R164 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W |
| R165 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R166 | 1-220-149-11 | REGISTER | 2.2 | 10% | 1/2W |
| R167 | 1-216-065-91 | RES,CHIP | 4.7K | 5% | 1/10W |
| R169 | 1-219-724-11 | METAL CHIP | 1 | 1% | 1/4W |
| R170 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R171 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R175 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R177 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R178 | 1-216-295-91 | SHORT | 0 | | |
| R179 | 1-216-091-00 | METAL CHIP | 56K | 5% | 1/10W |
| R180 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R182 | 1-216-089-91 | RES,CHIP | 47K | 5% | 1/10W |
| R183 | 1-216-089-91 | RES,CHIP | 47K | 5% | 1/10W |
| R184 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R188 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R189 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R190 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R195 | 1-216-295-91 | SHORT | 0 | | |
| R196 | 1-216-295-91 | SHORT | 0 | | |
| R197 | 1-216-295-91 | SHORT | 0 | | |
| R198 | 1-216-295-91 | SHORT | 0 | | |
| R199 | 1-216-295-91 | SHORT | 0 | | |
| R200 | 1-216-295-91 | SHORT | 0 | | |
| R202 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W |
| R203 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R204 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R210 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W |
| R330 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R331 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R332 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R333 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R351 | 1-216-053-00 | METAL CHIP | 1.5K | 5% | 1/10W |
| R352 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R356 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R361 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R362 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R363 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R366 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R367 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R379 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R380 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R381 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R382 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R383 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R384 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R386 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R387 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R388 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R389 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R391 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R393 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R400 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R401 | 1-216-089-91 | RES,CHIP | 47K | 5% | 1/10W |
| R402 | 1-216-113-00 | METAL CHIP | 470K | 5% | 1/10W |
| R405 | 1-216-063-91 | RES,CHIP | 3.9K | 5% | 1/10W |
| R420 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R421 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R422 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R423 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R424 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R425 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R429 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R430 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R431 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R432 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R433 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R434 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R435 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R438 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R439 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R440 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R441 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R442 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R443 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R444 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R445 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R448 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R449 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R451 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R454 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R455 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R456 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R457 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R458 | 1-216-097-91 | RES,CHIP | 100K | 5% | 1/10W |
| R460 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R462 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R502 | 1-216-295-91 | SHORT | 0 | | |
| R504 | 1-216-295-91 | SHORT | 0 | | |
| R600 | 1-216-053-00 | METAL CHIP | 1.5K | 5% | 1/10W |
| R602 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R603 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R604 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R605 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R606 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R607 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R608 | 1-216-025-91 | RES,CHIP | 100 | 5% | 1/10W |
| R2001 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| R2002 | 1-216-296-91 | SHORT | 0 | | |
| | | < VIBRATOR > | | | |
| X101 | 1-767-286-11 | VIBRATOR, CRYSTAL (22.5792MHz) | | | |
| X302 | 1-767-670-11 | VIBRATOR, CERAMIC (7MHz) | | | |

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| | | | | | |
|---|---|---|---|---|---|
| * | 1-671-020-21 | HP BOARD | | | |
| | | ******** | | | |
| | | < CAPACITOR > | | | |
| C1401 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C1402 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| | | < JACK > | | | |
| J1400 | 1-764-106-21 | JACK (PHONES) | | | |

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| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | A-4414-823-A | JACK BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS) | | | |
| | | ********** | | | |
| * | A-4414-826-A | JACK BOARD, COMPLETE (US,CND) | | | |
| | | ********** | | | |
| * | A-4414-830-A | JACK BOARD, COMPLETE (AEP,UK,EE) | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C401 | 1-162-282-21 | CERAMIC | 100PF | 10% | 50V |
| C411 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C412 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C413 | 1-126-964-11 | ELECT | 10uF | 20% | 50V |
| C421 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C422 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C431 | 1-126-934-11 | ELECT | 220uF | 20% | 10V |
| C432 | 1-126-933-11 | ELECT | 100uF | 20% | 16V |
| C448 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V (AEP,UK,EE) |
| C449 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V (AEP,UK,EE) |
| C498 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V (AEP,UK,EE) |
| C499 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V (AEP,UK,EE) |
| C451 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C461 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C462 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C463 | 1-126-964-11 | ELECT | 10uF | 20% | 50V |
| C473 | 1-136-173-00 | FILM | 0.47uF | 5% | 50V |
| | | < CONNECTOR > | | | |
| * CN401 | 1-568-858-11 | SOCKET, CONNECTOR 15P | | | |
| CN402 | 1-564-506-11 | PLUG, CONNECTOR 3P | | | |
| CN404 | 1-770-379-11 | CONNECTOR, BOARD TO BOARD 6P | | | |
| * CN420 | 1-565-561-11 | PIN, CONNECTOR 3P | | | |
| * CN430 | 1-565-500-11 | CONNECTOR, BOARD TO BOARD 9P | | | |
| * CN490 | 1-568-943-11 | PIN, CONNECTOR 5P | | | |
| | | < DIODE > | | | |
| D422 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D430 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D447 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D497 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| | | < JACK > | | | |
| J401 | 1-764-767-21 | JACK, PIN 2P (TAPE INPUT) | | | |
| J402 | 1-764-767-21 | JACK, PIN 2P (TAPE OUTPUT) | | | |
| | | < COIL > | | | |
| L448 | 1-420-872-00 | COIL, AIR-CORE | | | |
| L498 | 1-420-872-00 | COIL, AIR-CORE | | | |
| | | < TRANSISTOR > | | | |
| Q400 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |
| Q410 | 8-729-141-30 | TRANSISTOR 2SC3623A-LK | | | |
| Q420 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q431 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| Q432 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q433 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q434 | 8-729-119-76 | TRANSISTOR | 2SA1175-HFE | | | |
| Q435 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q436 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q450 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q460 | 8-729-141-30 | TRANSISTOR | 2SC3623A-LK | | | |
| | | < RESISTOR > | | | | |
| R401 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R402 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R403 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R404 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R405 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R411 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R412 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R413 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R414 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R415 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R421 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W | F |
| R422 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R423 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R424 | 1-249-831-11 | CARBON | 1K | 5% | 1/4W | |
| R431 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R433 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R434 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R435 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R436 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W | |
| R437 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| ⚠R444 | 1-215-914-11 | METAL OXIDE | 330 (US,CND,MY,SP,JE,HK,AR,AUS) | 5% | 3W | F |
| ⚠R444 | 1-216-478-11 | METAL OXIDE | 390 (AEP,UK,EE) | 5% | 3W | F |
| R445 | 1-260-089-11 | CARBON | 150 | 5% | 1/2W | |
| R446 | 1-260-089-11 | CARBON | 150 | 5% | 1/2W | |
| R447 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R448 | 1-260-076-11 | CARBON | 10 | 5% | 1/2W | |
| R449 | 1-260-076-11 | CARBON | 10 (AEP,UK,EE) | 5% | 1/2W | |
| R451 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R452 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R453 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R454 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R455 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R461 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R462 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R463 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R464 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R465 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R495 | 1-260-089-11 | CARBON | 150 | 5% | 1/2W | |
| R496 | 1-260-089-11 | CARBON | 150 | 5% | 1/2W | |
| R497 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W | |
| R498 | 1-260-076-11 | CARBON | 10 | 5% | 1/2W | |
| R499 | 1-260-076-11 | CARBON | 10 (AEP,UK,EE) | 5% | 1/2W | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < RELAY > | |
| RY430 | 1-515-833-11 | RELAY | |
| | | < TERMINAL > | |
| TM440 | 1-537-238-31 | TERMINAL BOARD (SPEAKER) | |

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| | | | |
|---|---|---|---|
| * | 1-634-461-11 | LOADING BOARD<br>********** | |
| | | < CONNECTOR > | |
| * CN291 | 1-564-498-11 | PIN, CONNECTOR 5P | |
| | | < SWITCH > | |
| S291 | 1-571-924-11 | SWITCH, LEAF (LOAD OUT) | |
| S292 | 1-571-924-11 | SWITCH, LEAF (LOAD IN) | |

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| | | | |
|---|---|---|---|
| * | A-4417-124-A | MAIN BOARD, COMPLETE (AEP,UK,EE)<br>********** | |
| * | A-4417-128-A | MAIN BOARD, COMPLETE (MY,SP,JE,HK,AR,AUS)<br>********** | |
| * | A-4417-132-A | MAIN BOARD, COMPLETE (US,CND)<br>********** | |
| | | < CAPACITOR > | |

| | | | | | |
|---|---|---|---|---|---|
| C501 | 1-128-548-11 | ELECT | 4700uF | 20% | 25V |
| C502 | 1-104-665-11 | ELECT | 100uF | 20% | 25V |
| C503 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C504 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C511 | 1-126-795-11 | ELECT | 10uF | 20% | 25V |
| C512 | 1-126-767-11 | ELECT | 1000uF | 20% | 16V |
| C513 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C514 | 1-126-926-11 | ELECT | 1000uF | 20% | 10V |
| C515 | 1-126-934-11 | ELECT | 220uF | 20% | 16V |
| C516 | 1-126-933-11 | ELECT | 100uF | 20% | 16V |
| C522 | 1-126-934-11 | ELECT | 220uF | 20% | 16V |
| C523 | 1-126-934-11 | ELECT | 220uF | 20% | 16V |
| C525 | 1-126-933-11 | ELECT | 100uF | 20% | 16V |
| C531 | 1-126-969-11 | ELECT | 220uF | 20% | 50V |
| C532 | 1-126-969-11 | ELECT | 220uF | 20% | 50V |
| C533 | 1-126-969-11 | ELECT | 220uF | 20% | 50V |
| C535 | 1-126-964-11 | ELECT | 10uF | 20% | 50V |
| C536 | 1-126-947-11 | ELECT | 47uF | 20% | 35V |
| C550 | 1-117-850-11 | ELECT | 15000uF | 20% | 16V |
| C551 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C552 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C561 | 1-126-791-11 | ELECT | 10uF | 20% | 16V |
| C562 | 1-126-916-11 | ELECT | 1000uF | 20% | 6.3V |
| C563 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C564 | 1-126-964-11 | ELECT | 10uF | 20% | 50V |
| C565 | 1-126-916-11 | ELECT | 1000uF | 20% | 6.3V |
| C566 | 1-126-916-11 | ELECT | 1000uF | 20% | 6.3V |
| C572 | 1-126-960-11 | ELECT | 1uF | 20% | 50V |

| | |
|---|---|
| The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.<br>Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.<br>Ne les remplacer que par une piéce portant le numéro spécifié. |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C573 | 1-126-965-11 | ELECT | 22uF | 20% | 50V |
| C574 | 1-126-934-11 | ELECT | 220uF | 20% | 10V |
| C575 | 1-126-934-11 | ELECT | 220uF | 20% | 10V |
| C576 | 1-126-964-11 | ELECT | 10uF | 20% | 50V |
| C577 | 1-126-934-11 | ELECT | 220uF | 20% | 10V |
| C578 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C579 | 1-110-489-11 | CAPACITOR | 1F | | 5.5V |
| C580 | 1-126-933-11 | ELECT | 100uF | 20% | 16V |
| C591 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C592 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C602 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C604 | 1-126-960-11 | ELECT | 1uF | 20% | 50V |
| C608 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C612 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C613 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C614 | 1-102-514-11 | CERAMIC | 22PF | 5% | 50V |
| C615 | 1-102-958-00 | CERAMIC | 20PF | 5% | 50V |
| C616 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C617 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C618 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C619 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C620 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C621 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C622 | 1-125-623-11 | DOUBLE LAYER | 0.22F | 0 | 5.5V |
| C807 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C808 | 1-104-664-11 | ELECT | 47uF | 20% | 16V |
| C809 | 1-126-925-11 | ELECT | 470uF | 20% | 10V |
| C814 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C815 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C816 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C817 | 1-104-664-11 | ELECT | 47uF | 20% | 16V |
| C821 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C822 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C823 | 1-126-916-11 | ELECT | 1000uF | 20% | 6.3V |
| C831 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C832 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C833 | 1-126-964-11 | ELECT | 10uF | 20% | 50V |
| C834 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C835 | 1-162-285-31 | CERAMIC | 180PF | 10% | 50V |
| C837 | 1-126-925-11 | ELECT | 470uF | 20% | 10V |
| C839 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C841 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C842 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C871 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C872 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C881 | 1-126-959-11 | ELECT | 0.47uF | 20% | 50V |
| | | < CONNECTOR > | | | |
| CN503 | 1-564-511-11 | PLUG, CONNECTOR 8P | | | |
| CN506 | 1-770-412-11 | CONNECTOR, BOARD TO BOARD 6P | | | |
| CN590 | 1-564-506-11 | PLUG, CONNECTOR 3P | | | |
| CN801 | 1-770-067-11 | CONNECTOR, FFC/FPC 19P | | | |
| * CN802 | 1-564-339-00 | PIN, CONNECTOR 5P | | | |
| CN820 | 1-770-653-11 | CONNECTOR, FFC/FPC 25P | | | |
| CN850 | 1-691-648-11 | SOCKET, CONNECTOR 15P | | | |
| CN870 | 1-568-834-11 | SOCKET, CONNECTOR 15P | | | |
| CN871 | 1-779-820-11 | CONNECTOR, BOARD TO BOARD 14P | | | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| CN872 | 1-779-820-11 | CONNECTOR, BOARD TO BOARD 14P | |
| * CN873 | 1-568-839-11 | SOCKET, CONNECTOR 23P | |
| | | < DIODE > | |
| D501 | 8-719-200-82 | DIODE 11ES2 | |
| D502 | 8-719-200-82 | DIODE 11ES2 | |
| D503 | 8-719-200-82 | DIODE 11ES2 | |
| D504 | 8-719-200-82 | DIODE 11ES2 | |
| D511 | 8-719-110-09 | DIODE RD8.2ES-B3 | |
| D521 | 8-719-929-15 | DIODE MZS9.1NB2 | |
| D531 | 8-719-200-82 | DIODE 11ES2 | |
| D532 | 8-719-200-82 | DIODE 11ES2 | |
| D533 | 8-719-200-82 | DIODE 11ES2 | |
| D534 | 8-719-983-88 | DIODE MTZJ-T-72-33C | |
| D551 | 8-719-200-02 | DIODE 10E2 | |
| D552 | 8-719-200-02 | DIODE 10E2 | |
| D553 | 8-719-200-02 | DIODE 10E2 | |
| D554 | 8-719-200-02 | DIODE 10E2 | |
| D561 | 8-719-200-82 | DIODE 11ES2 | |
| D562 | 8-719-911-19 | DIODE 1SS119-25 | |
| D563 | 8-719-200-82 | DIODE 11ES2 | |
| D571 | 8-719-911-19 | DIODE 1SS119-25 | |
| D572 | 8-719-911-19 | DIODE 1SS119-25 | |
| D581 | 8-719-911-19 | DIODE 1SS119-25 | |
| D582 | 8-719-911-19 | DIODE 1SS119-25 | |
| D591 | 8-719-921-80 | DIODE MTZJ-11B | |
| D601 | 8-719-911-19 | DIODE 1SS119-25 | |
| D602 | 8-719-911-19 | DIODE 1SS119-25 | |
| D603 | 8-719-200-82 | DIODE 11ES2 | |
| D604 | 8-719-200-82 | DIODE 11ES2 | |
| D605 | 8-719-911-19 | DIODE 1SS119-25 | |
| D801 | 8-719-911-19 | DIODE 1SS119-25 | |
| D802 | 8-719-911-19 | DIODE 1SS119-25 | |
| D803 | 8-719-921-40 | DIODE MTZJ-4.7C | |
| D881 | 8-719-911-19 | DIODE 1SS119-25 | |
| D882 | 8-719-911-19 | DIODE 1SS119-25 | |
| | | < GROUND TERMINAL > | |
| EPT501 | 1-537-770-21 | TERMINAL BOARD, GROUND | |
| | | < FERRITE BEAD > | |
| FB802 | 1-412-473-21 | INDUCTOR 0UH | |
| FB803 | 1-412-473-21 | INDUCTOR 0UH | |
| FB805 | 1-412-473-21 | INDUCTOR 0UH | |
| FB806 | 1-412-473-21 | INDUCTOR 0UH | |
| | | < IC > | |
| IC510 | 8-759-604-32 | IC M5F7810 | |
| IC511 | 8-759-604-86 | IC M5F7807L | |
| IC560 | 8-759-450-47 | IC BA05T | |
| IC570 | 8-759-426-96 | IC LA5620 | |
| IC601 | 8-759-545-08 | IC uPD78078GF-083-3BA | |
| IC602 | 8-759-635-63 | IC M51943BSL | |
| IC603 | 8-759-481-02 | IC M62016L | |
| IC801 | 8-759-822-09 | IC LB1641 | |
| IC840 | 8-759-269-09 | IC SN74HCT04ANS | |

## MAIN

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| IC842 | 8-759-267-86 | IC SN74HC00ANS-E20 | | | | |
| | | < COIL > | | | | |
| L523 | 1-408-117-00 | INDUCTOR | 10uH | | | |
| L601 | 1-410-509-11 | INDUCTOR | 10uH | | | |
| L739 | 1-410-470-11 | INDUCTOR | 10uH | | | |
| | | < TRANSISTOR > | | | | |
| Q510 | 8-729-111-29 | TRANSISTOR | 2SD1616A-K | | | |
| Q520 | 8-729-118-00 | TRANSISTOR | 2SB1116-L | | | |
| Q521 | 8-729-119-76 | TRANSISTOR | 2SA1175-HFE | | | |
| Q530 | 8-729-018-59 | TRANSISTOR | 2SB1375-LC (LB-SONY) | | | |
| Q561 | 8-729-118-01 | TRANSISTOR | 2SB1116 | | | |
| Q562 | 8-729-422-73 | TRANSISTOR | UN4212 | | | |
| Q571 | 8-729-422-57 | TRANSISTOR | UN4111 | | | |
| Q572 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| Q591 | 8-729-119-76 | TRANSISTOR | 2SA1175-HFE | | | |
| Q592 | 8-729-021-82 | TRANSISTOR | 2SD2396K | | | |
| Q601 | 8-729-900-80 | TRANSISTOR | DTC114ES | | | |
| Q602 | 8-729-620-05 | TRANSISTOR | 2SC2603-EF | | | |
| Q871 | 8-729-422-57 | TRANSISTOR | UN4111 | | | |
| Q872 | 8-729-422-57 | TRANSISTOR | UN4111 | | | |
| | | < RESISTOR > | | | | |
| ⚠R510 | 1-219-786-11 | FUSIBLE | 22 | 5% | 1/4W | F |
| R511 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F |
| ⚠R520 | 1-219-786-11 | FUSIBLE | 22 | 5% | 1/4W | F |
| R521 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R522 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| ⚠R530 | 1-219-153-11 | FUSIBLE | 10 | 5% | 1/4W | F |
| R531 | 1-260-095-11 | CARBON | 470 | 5% | 1/2W | |
| R562 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R563 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W | F |
| R564 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W | |
| R571 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R572 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R573 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W | |
| R576 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R581 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R582 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| ⚠R590 | 1-217-640-11 | FUSIBLE | 3.3 | 5% | 1/4W | F |
| R591 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W | F |
| R592 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W | |
| R593 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R601 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R602 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R603 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R604 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R605 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R606 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R607 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R608 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R609 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R610 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R611 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R612 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |
| R613 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R614 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R615 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W F |
| R616 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| R617 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W F |
| R618 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W F |
| R619 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| R620 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W F |
| R621 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| R622 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R623 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R624 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R625 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R626 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R627 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R628 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R630 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R631 | 1-249-433-11 | CARBON | 22K | 5% | 1/4W |
| R632 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R633 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R634 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R635 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R636 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R637 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R638 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R639 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R640 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R641 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R642 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R643 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R644 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R645 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W F |
| R646 | 1-247-843-11 | CARBON | 3.3K | 5% | 1/4W |
| R647 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R648 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W F |
| R649 | 1-247-891-00 | CARBON | 330K | 5% | 1/4W |
| R650 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R651 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R652 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R653 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R654 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R655 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R656 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R801 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R807 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R821 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R822 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R825 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R826 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R831 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R832 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R851 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W F |
| R852 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R861 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W F |
| R862 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R871 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W F |
| R872 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R873 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W |

| | |
|---|---|
| The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.<br>Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.<br>Ne les remplacer que par une piéce portant le numéro spécifié. |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R874 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W F |
| R875 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R876 | 1-247-887-00 | CARBON | 220K | 5% | 1/4W |
| R881 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W |
| | | < VIBRATOR > | | | |
| X601 | 1-760-489-11 | VIBRATOR, CERAMIC (5MHz) | | | |
| X602 | 1-567-098-41 | VIBRATOR, CRYSTAL (32kHz) | | | |
| ********** | | | | | |
| * | 1-670-745-21 | MD LED BOARD | | | |
| | | ********** | | | |
| | | < DIODE > | | | |
| D905 | 8-719-057-09 | DIODE LNJ801LPDJA (MD INDICATOR) | | | |
| ********** | | | | | |
| * | A-4417-317-A | PANEL BOARD, COMPLETE | | | |
| | | ********** | | | |
| * | 4-993-866-21 | HOLDER (FL) | | | |
| | | < CAPACITOR > | | | |
| C901 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C902 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C903 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C923 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C935 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C936 | 1-124-234-00 | ELECT | 22uF | 20% | 16V |
| C937 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C940 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C946 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C948 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C949 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C950 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C951 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C952 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C953 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C954 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C955 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C956 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C957 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C958 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C959 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C960 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C961 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C962 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C964 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C965 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| | | < CONNECTOR > | | | |
| * CN901 | 1-568-865-11 | SOCKET, CONNECTOR 23P | | | |
| | | < DIODE > | | | |
| D901 | 8-719-921-48 | DIODE MTZJ-5.6C | | | |
| D902 | 8-719-057-10 | DIODE LNJ301MPUJAB (▶II (MD)) | | | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| D903 | 8-719-058-17 | DIODE LNG401NPYJA (■ (MD)) | | | |
| D904 | 8-719-057-09 | DIODE LNJ801LPDJA (● REC) | | | |
| D906 | 8-719-057-10 | DIODE LNJ301MPUJAB (▶II (CD)) | | | |
| D907 | 8-719-058-17 | DIODE LNG401NPYJA (■ (CD)) | | | |
| D908 | 8-719-057-09 | DIODE LNJ801LPDJA (CD INDICATOR) | | | |
| | | < FLUORESCENT INDICATOR > | | | |
| FL901 | 1-517-687-11 | INDICATOR TUBE, FLUORESCENT | | | |
| | | < IC > | | | |
| IC901 | 8-759-297-23 | IC M66004M8FP | | | |
| IC902 | 8-759-459-83 | IC NJL55H400A | | | |
| | | < TRANSISTOR > | | | |
| Q901 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |
| Q902 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |
| Q904 | 8-729-422-57 | TRANSISTOR UN4111 | | | |
| Q905 | 8-729-422-57 | TRANSISTOR UN4111 | | | |
| Q906 | 8-729-422-57 | TRANSISTOR UN4111 | | | |
| Q907 | 8-729-422-57 | TRANSISTOR UN4111 | | | |
| Q908 | 8-729-422-57 | TRANSISTOR UN4111 | | | |
| Q909 | 8-729-422-57 | TRANSISTOR UN4111 | | | |
| Q910 | 8-729-422-57 | TRANSISTOR UN4111 | | | |
| | | < RESISTOR > | | | |
| R901 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R902 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R903 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R904 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R907 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R908 | 1-249-435-11 | CARBON | 33K | 5% | 1/4W |
| R909 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R910 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R911 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R912 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R913 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W F |
| R914 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R915 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W F |
| R916 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R917 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R918 | 1-249-409-11 | CARBON | 220 | 5% | 1/4W F |
| R919 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R920 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R921 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R922 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R924 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W F |
| R925 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W F |
| R928 | 1-249-411-11 | CARBON | 330 | 5% | 1/4W |
| R930 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R932 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W F |
| R933 | 1-249-407-11 | CARBON | 150 | 5% | 1/4W F |
| R936 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W F |
| R938 | 1-249-393-11 | CARBON | 10 | 5% | 1/4W F |
| R941 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W F |
| R942 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W F |
| R943 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |

## PANEL | POWER AMP

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R944 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W F |
| R945 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W F |
| R946 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W F |
| R947 | 1-249-415-11 | CARBON | 680 | 5% | 1/4W F |
| R948 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R949 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W F |
| R950 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W F |
| R951 | 1-249-425-11 | CARBON | 4.7K | 5% | 1/4W F |
| R952 | 1-249-430-11 | CARBON | 12K | 5% | 1/4W |
| | | < SWITCH > | | | |
| S901 | 1-473-392-11 | ENCODER, ROTARY (VOLUME) | | | |
| S902 | 1-762-875-21 | SWITCH, KEYBOARD (I/⏻) | | | |
| S903 | 1-762-875-21 | SWITCH, KEYBOARD (■ (CD)) | | | |
| S904 | 1-762-875-21 | SWITCH, KEYBOARD (▶II (CD)) | | | |
| S905 | 1-762-875-21 | SWITCH, KEYBOARD (⏏ (CD)) | | | |
| S906 | 1-762-875-21 | SWITCH, KEYBOARD (■ (MD)) | | | |
| S907 | 1-762-875-21 | SWITCH, KEYBOARD (▶II (MD)) | | | |
| S908 | 1-762-875-21 | SWITCH, KEYBOARD (⏏ (MD)) | | | |
| S909 | 1-762-875-21 | SWITCH, KEYBOARD (FUNCTION) | | | |
| S910 | 1-762-875-21 | SWITCH, KEYBOARD (MD/CD ▶▶ ▶▶I/TUNING +) | | | |
| S911 | 1-762-875-21 | SWITCH, KEYBOARD (TUNER/BAND) | | | |
| S912 | 1-762-875-21 | SWITCH, KEYBOARD (MD/CD I◀◀ ◀◀/TUNING -) | | | |
| S913 | 1-762-875-21 | SWITCH, KEYBOARD (● REC) | | | |
| S914 | 1-762-875-21 | SWITCH, KEYBOARD (CD-MD SYNC) | | | |
| S915 | 1-762-875-21 | SWITCH, KEYBOARD (REPEAT/STEREO/MONO) | | | |
| S916 | 1-762-875-21 | SWITCH, KEYBOARD (PLAY MODE/TUNING MODE) | | | |
| ********** | | | | | |
| * | A-4417-126-A | POWER AMP BOARD, COMPLETE (AEP,UK,EE) | | | |
| | | ********** | | | |
| * | A-4417-130-A | POWER AMP BOARD, COMPLETE | | | |
| | | ********** (MY,SP,JE,HK,AR,AUS) | | | |
| * | A-4417-134-A | POWER AMP BOARD, COMPLETE (US,CND) | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C1201 | 1-126-963-11 | ELECT | 4.7uF | 20% | 50V |
| C1202 | 1-162-288-31 | CERAMIC | 330PF | 10% | 50V |
| C1203 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C1204 | 1-126-967-11 | ELECT | 47uF | 20% | 50V |
| C1205 | 1-126-967-11 | ELECT | 47uF | 20% | 50V |
| C1206 | 1-126-948-11 | ELECT | 100uF | 20% | 35V |
| C1207 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C1208 | 1-126-965-11 | ELECT | 22uF | 20% | 50V |
| C1210 | 1-136-163-00 | FILM | 0.068uF | 5% | 50V |
| C1211 | 1-136-163-00 | FILM | 0.068uF | 5% | 50V |
| C1220 | 1-126-924-11 | ELECT | 330uF | 20% | 10V |
| C1251 | 1-126-963-11 | ELECT | 4.7uF | 20% | 50V |
| C1252 | 1-162-288-31 | CERAMIC | 330PF | 10% | 50V |
| C1253 | 1-162-286-31 | CERAMIC | 220PF | 10% | 50V |
| C1254 | 1-126-967-11 | ELECT | 47uF | 20% | 50V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C1255 | 1-126-967-11 | ELECT | 47uF | 20% | 50V |
| C1256 | 1-126-948-11 | ELECT | 100uF | 20% | 35V |
| C1257 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C1260 | 1-136-163-00 | FILM | 0.068uF | 5% | 50V |
| C1261 | 1-136-163-00 | FILM | 0.068uF | 5% | 50V |
| C1301 | 1-126-042-11 | ELECT | 3300uF | 20% | 35V |
| C1302 | 1-126-042-11 | ELECT | 3300uF | 20% | 35V |
| C1303 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| C1304 | 1-136-165-00 | FILM | 0.1uF | 5% | 50V |
| | | < CONNECTOR > | | | |
| * CN1202 | 1-565-485-11 | CONNECTOR, BOARD TO BOARD 9P | | | |
| | | < DIODE > | | | |
| D1201 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D1202 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D1203 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D1213 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D1251 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D1263 | 8-719-911-19 | DIODE 1SS119-25 | | | |
| D1300 | 8-719-025-03 | DIODE RBA-402-SL | | | |
| | | < IC > | | | |
| IC1201 | 8-749-920-13 | IC STK4132MK2 | | | |
| | | < TRANSISTOR > | | | |
| Q1201 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |
| Q1202 | 8-729-900-80 | TRANSISTOR DTC114ES | | | |
| Q1231 | 8-729-422-73 | TRANSISTOR UN4212 | | | |
| Q1232 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |
| Q1251 | 8-729-620-05 | TRANSISTOR 2SC2603-EF | | | |
| | | < RESISTOR > | | | |
| R1201 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R1202 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R1203 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R1204 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R1205 | 1-260-103-11 | CARBON | 2.2K | 5% | 1/2W |
| R1207 | 1-260-103-11 | CARBON | 2.2K | 5% | 1/2W |
| ⚠R1209 | 1-212-881-11 | FUSIBLE | 100 | 5% | 1/4W F |
| ⚠R1210 | 1-217-151-00 | METAL | 0.22 | 10% | 2W |
| R1211 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R1212 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R1214 | 1-260-099-11 | CARBON | 1K | 5% | 1/2W |
| R1217 | 1-260-099-11 | CARBON | 1K | 5% | 1/2W |
| R1218 | 1-249-397-11 | CARBON | 22 | 5% | 1/4W F |
| R1219 | 1-249-397-11 | CARBON | 22 | 5% | 1/4W F |
| R1225 | 1-249-397-11 | CARBON | 22 | 5% | 1/4W F |
| R1226 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R1227 | 1-247-854-11 | CARBON | 9.1K | 5% | 1/4W (AEP,UK,EE,MY,SP,JE,HK,AR,AUS) |
| R1227 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W (US,CND) |
| R1228 | 1-247-880-11 | CARBON | 110K | 5% | 1/4W (AEP,UK,EE) |
| R1228 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W (US,CND,MY,SP,JE,HK,AR,AUS) |

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|---|---|
| The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.<br>Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.<br>Ne les remplacer que par une piéce portant le numéro spécifié. |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R1229 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R1231 | 1-247-807-31 | CARBON | 100 | 5% | 1/4W |
| R1232 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| R1233 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W |
| ⚠R1243 | 1-217-637-00 | FUSIBLE | 1 | 5% | 1/4W F |
| R1251 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R1252 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R1253 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R1254 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R1255 | 1-260-103-11 | CARBON | 2.2K | 5% | 1/2W |
| R1257 | 1-260-103-11 | CARBON | 2.2K | 5% | 1/2W |
| ⚠R1259 | 1-212-881-11 | FUSIBLE | 100 | 5% | 1/4W F |
| ⚠R1260 | 1-217-151-00 | METAL | 0.22 | 10% | 2W |
| R1261 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W F |
| R1262 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R1268 | 1-249-397-11 | CARBON | 22 | 5% | 1/4W F |
| R1269 | 1-249-397-11 | CARBON | 22 | 5% | 1/4W F |
| R1271 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R1272 | 1-249-431-11 | CARBON | 15K | 5% | 1/4W |
| R1273 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W F |
| | | < THERMISTOR(POSITIVE) > | | | |
| THP1230 | 1-807-796-11 | THERMISTOR | | | |

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|---|---|---|---|
| * | 1-666-905-11 | ST TERMINAL BOARD | |
| | | ********** | |
| | | < CONNECTOR > | |
| CN744 | 1-568-834-11 | SOCKET, CONNECTOR 15P | |
| CN745 | 1-774-289-11 | PIN, CONNECTOR (PC BOARD) 15P | |

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|---|---|---|---|
| * | 1-667-719-11 | SW BOARD | |
| | | ******** | |
| | | < CONNECTOR > | |
| CN601 | 1-770-697-11 | CONNECTOR, FFC/FPC 14P | |
| CN602 | 1-778-638-21 | PIN, CONNECTOR (PC BOARD) 2P | |
| CN603 | 1-778-638-21 | PIN, CONNECTOR (PC BOARD) 2P | |
| | | < SWITCH > | |
| S681 | 1-572-467-61 | SWITCH, PUSH (1 KEY)(LIMIT IN) | |
| S682 | 1-692-377-31 | SWITCH, PUSH (1 KEY)(REFLECT) | |
| S683 | 1-692-847-21 | SWITCH, PUSH (1 KEY)(PROTECT) | |
| S685 | 1-572-467-61 | SWITCH, PUSH (1 KEY)(CHUCKING IN) | |
| S686 | 1-762-621-21 | SWITCH, PUSH (1 KEY)(PACK OUT) | |
| S687 | 1-572-688-11 | SWITCH, PUSH (1 KEY)(PB POSITION) | |
| S688 | 1-762-621-21 | SWITCH, PUSH (1 KEY)(REC POSITION) | |

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|---|---|---|---|
| * | 1-666-904-11 | TRANS BOARD | |
| | | ********** | |
| | | < CONNECTOR > | |
| CN1600 | 1-564-321-00 | PIN, CONNECTOR 2P | |
| * CN1601 | 1-564-518-11 | PLUG, CONNECTOR 3P | |
| CN1602 | 1-564-523-11 | PLUG, CONNECTOR 8P | |
| | | < FUSE > | |
| ⚠F1601 | 1-532-388-31 | FUSE (T2AL/250V)(MY,SP,JE,HK,AR,AUS) | |
| ⚠F1603 | 1-532-504-31 | FUSE (T4AL/250V) (AEP,UK,EE,MY,SP,JE,HK,AR,AUS) | |
| ⚠F1603 | 1-533-419-11 | FUSE, GLASS CYLINDRICAL (DIA.5)(4A/125V) (US,CND) | |
| ⚠F1605 | 1-532-504-31 | FUSE (T4AL/250V) (AEP,UK,EE,MY,SP,JE,HK,AR,AUS) | |
| ⚠F1605 | 1-533-419-11 | FUSE, GLASS CYLINDRICAL (DIA.5)(4A/125V) (US,CND) | |
| | | < FUSE HOLDER > | |
| FH1601 | 1-533-293-11 | FUSE HOLDER (MY,SP,JE,HK,AR,AUS) | |
| FH1602 | 1-533-293-11 | FUSE HOLDER (MY,SP,JE,HK,AR,AUS) | |
| FH1603 | 1-533-293-11 | FUSE HOLDER | |
| FH1604 | 1-533-293-11 | FUSE HOLDER | |
| FH1605 | 1-533-293-11 | FUSE HOLDER | |
| FH1606 | 1-533-293-11 | FUSE HOLDER | |
| | | < RESISTOR > | |
| ⚠R1600 | 1-202-725-00 | SOLID 3.3M 10% 1/2W (US,CND) | |
| | | < SWITCH > | |
| ⚠S1600 | 1-762-753-11 | SWITCH, VOLTAGE SELECTION (MY,SP,JE,HK,AR,AUS) | |
| | | < TRANSFORMER > | |
| ⚠T1600 | 1-431-498-11 | TRANSFORMER, POWER (MY,SP,JE,HK,AR,AUS) | |
| ⚠T1600 | 1-431-988-11 | TRANSFORMER, POWER (AEP,UK,EE) | |
| ⚠T1600 | 1-431-989-11 | TRANSFORMER, POWER (US,CND) | |
| | | < THERMISTOR(POSITIVE) > | |
| THP1600 | 1-801-696-11 | THERMISTOR, POSITIVE | |
| THP1601 | 1-801-696-11 | THERMISTOR, POSITIVE | |
| THP1602 | 1-801-671-11 | THERMISTOR, POSITIVE | |
| THP1603 | 1-801-671-11 | THERMISTOR, POSITIVE | |

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|---|---|---|---|
| | | MISCELLANEOUS | |
| | | ********** | |
| 10 | 1-782-793-11 | WIRE (FLAT TYPE) (23 CORE) | |
| 52 | 1-782-990-11 | WIRE (FLAT TYPE) (19 CORE) | |
| 56 | 1-782-991-11 | WIRE (FLAT TYPE) (15 CORE) | |
| 62 | 1-233-544-21 | ENCAPSULATED COMPONENT (US,CND) | |
| 62 | 1-233-546-21 | ENCAPSULATED COMPONENT (MY,SP,JE,HK,AR,AUS) | |
| 62 | 1-693-387-21 | TUNER (FM/MW/LW)(AEP,UK,EE) | |
| 64 | 1-783-213-11 | WIRE (FLAT TYPE) (15 CORE) | |
| ⚠68 | 1-569-008-21 | ADAPTOR, CONVERSION 2P (MY,SP,JE) | |
| ⚠69 | 1-770-019-11 | ADAPTOR, CONVERSION PLUG 3P (UK,EE,HK) | |
| 102 | 1-660-966-11 | OP RELAY FLEXIBLE BOARD | |
| 103 | 1-782-683-11 | WIRE (FLAT TYPE) (14 CORE) | |
| 110 | 1-783-113-11 | WIRE (FLAT TYPE) (25 CORE) | |

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| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| ⚠167 | 8-583-028-02 | OPTICAL PICK-UP KMS-260A/J1N (for MD) | |
| ⚠255 | 8-848-379-31 | OPTICAL PICK-UP KSS-213B/K-N (for CD) | |
| 256 | 1-769-069-11 | WIRE (FLAT TYPE) (16 CORE) | |
| ⚠CNP1601 | 1-696-847-11 | CORD, POWER (AUS) | |
| ⚠CNP1601 | 1-769-744-11 | CORD, POWER (AEP,UK,EE,MY,SP,JE,HK) | |
| ⚠CNP1601 | 1-783-532-11 | CORD, POWER (US,CND) | |
| ⚠CNP1601 | 1-783-941-11 | CORD, POWER (AR) | |
| FAN901 | 1-698-997-11 | FAN, D.C. | |
| FL901 | 1-517-687-11 | INDICATOR TUBE, FLUORESCENT | |
| HR901 | 1-500-396-11 | HEAD, OVER LIGHT (RF325-74A) | |
| M101 | X-4917-523-4 | BASE (OUTSART) ASSY (SPINDLE) | |
| M102 | X-4917-504-1 | MOTOR ASSY (SLED) | |
| M901 | A-4672-135-A | MOTOR ASSY, SPINDLE | |
| M902 | A-4672-133-A | MOTOR ASSY, SLED | |
| M903 | A-4672-134-A | MOTOR ASSY, LOADING (MD) | |
| M904 | A-4608-362-A | MOTOR (L) ASSY (LOADING) (CD) | |
| ⚠T1600 | 1-431-498-11 | TRANSFORMER, POWER (MY,SP,JE,HK,AR,AUS) | |
| ⚠T1600 | 1-431-988-11 | TRANSFORMER, POWER (AEP,UK,EE) | |
| ⚠T1600 | 1-431-989-11 | TRANSFORMER, POWER (US,CND) | |

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HARDWARE LIST
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| | | |
|---|---|---|
| #1 | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S |
| #2 | 7-685-647-79 | SCREW +BVTP 3X10 TYPE2 N-S |
| #3 | 7-685-650-79 | SCREW +BVTP 3X16 TYPE2 IT-3 |
| #4 | 7-685-871-01 | SCREW +BVTT 3X6 (S) |
| #5 | 7-685-850-04 | SCREW +BVTT 2X3 (S) |
| #6 | 7-685-851-04 | SCREW +BVTT 2X4 (S) |
| #7 | 7-627-553-17 | PRECISION SCREW +P 2X2 TYPE 3 |
| #8 | 7-627-552-27 | SCREW,PRECISION +P 1.7X2 |
| #9 | 7-624-105-04 | STOP RING 2.3, TYPE -E |
| #10 | 7-685-234-19 | SCREW +KTP 2.6X8 TYPE2NON-SLIT |
| #11 | 7-621-775-10 | SCREW +B 2.6X4 |
| #12 | 7-621-255-15 | SCREW +P 2X3 |
| #13 | 7-627-852-28 | +P 1.7X3 |

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98H0989-1
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